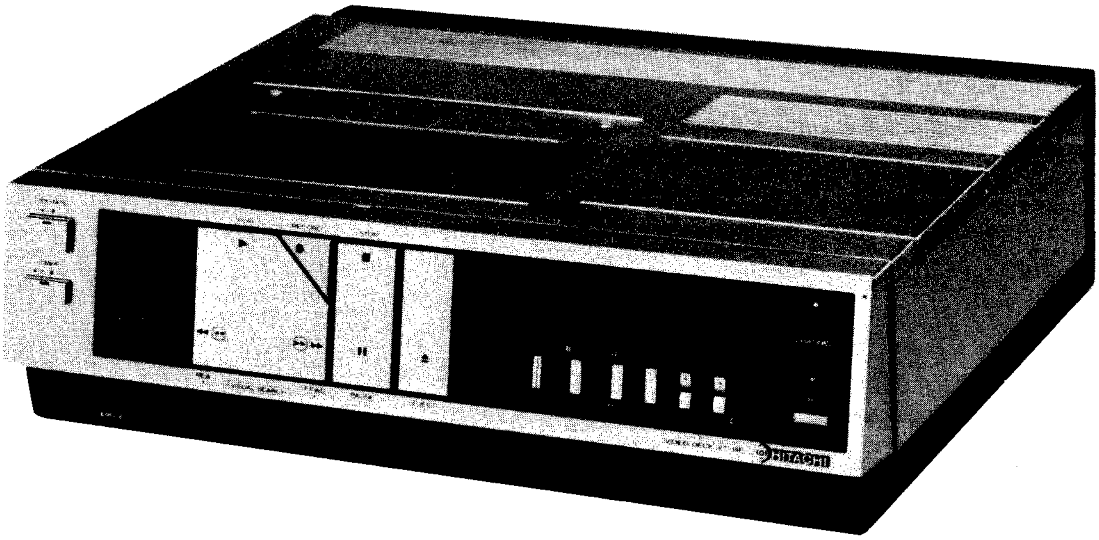
HITACHI SERVICE MANUAL

TK **No. 1908E**

VT-14E,E(BS)

Technical Data



VHS

THIS VIDEO DECK IS A VHS TYPE VIDEO RECORDER.
FOR PROPER OPERATION, ONLY VHS TYPE CASSETTES MUST BE USED.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

VIDEO CASSETTE RECORDER

April 1983 **TOKAI WORKS**

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COMPARISON WITH CONVENTIONAL MODEL

Item			**VT-11E, E(BS)**	**VT-14E, E(BS)**
Funcltion	Operation mode (operation sw.)		1. Stop 2. Record 3. Play 4. Fast forward 5. Rewind 6. FWD. visual search 7. REV. visual search 8. Pause	← ← ← ← ← ← ← ←
	Remote control		8 mode/6 button wired	10 mode/10 button wireless (For UK model)
	Recording speed		1 mode	←
	Play speed		2 mode 1. Normal 2. FWD/REV visual search	←
	Tape counter		4 digit electronic (Also used for timer display)	←
Type of chassis			**"U" type chassis**	←
Circuit configuration	Servo circuit	Speed control system (Main control IC type)	Analog system (HA-11749)	←
		Phase control system (Main control IC type)	Digital system (HA-11747)	←
		Cylinder motor (Main control IC type)	1-phase DD motor (HA-13402)	←
		Capstan motor (Main control IC type)	DC motor (Discrete composition)	←
	System control circuit	Main control IC type	HD38750A79	HD38800B1Z
		Infrared remote control	✕	○ (For UK model)
	Tuner circuit	Channel range	8-channel mechanical lock (For UK model) 12-channel mechanical lock (Except for UK model)	8-channel electronic lock (For UK model) 12-channel electronic lock (Except for UK model)
	Video circuit	Main constituent IC	HT4207 (IC201) HT4208 (IC202) HT4219 (IC203)	HT4207 (IC201) HT4238 (IC202) HT4239 (IC203)
		Adding V sync circuit	MSL9378RS	←

Item			VT-11E, E(BS)	VT-14E, E(BS)
	Audio circuit	Main constituent IC	BA5102	BA3302 (IC401R, L) PC4066 (IC402R, L) TA7629 (IC403R, L)
		Stereo/Dolby NR function	×	○
	Timer circuit	Programme	1. Programme/10-day	5-programme/2-week
		Main constituent IC	HD38750A79	M58839-606P

SPECIFICATIONS

	VT-14E(BS)	VT-14E
Format:	VHS PAL standard	←
Video Recording System:	Rotary two head helical scan azimuth recording	←
Video Signal System:	PAL colour (System 1) and CCIR monochrome signals 625 lines	PAL colour (System B and G) and CCIR monochrome signals 625 lines.
Tape Speed:	23.39 mm/sec.	←
Tape Width:	12.7 mm	←
Operation Temperature:	5°C to 40°C	←
Recording Time:	240 min (with Hitachi E-240 cassette)	←
RF Input:	UHF channels 21 – 69	UHF: channels 20 – 69 VHF: channels 2 – 12
RF Output:	UHF channels 37 (30 to 39ch adjustable)	←
Video Input:	0.5 – 1.5 Vp-p 75 ohms unbalanced	←
Video Output:	1.0 Vp-p 75 ohms unbalanced	←
S/N Ratio (Video):	40 dB	←
S/N Ratio (Audio):	40 dB (DOLBY NR switch OFF) 50 dB (DOLBY NR switch ON)	← ←
Horizontal Resolution:	Colour 240 lines	←
Audio Input:	– 8 dBm/50 kohms	←
Audio Output:	– 8 dBm/10 kohms	←
Audio Frequency Range:	70 Hz to 12 kHz	←
Power Supply:	AC240V 50 Hz	AC220V 50 Hz
Power Consumption:	38W (Including timer)	←
Timer	AM-PM 12 hour digital indication	24 hour digital indication
Cabinet Size:	435 mm(W) x 127 mm(H) x 339 mm(D)	←
Weight:	8 kg	←

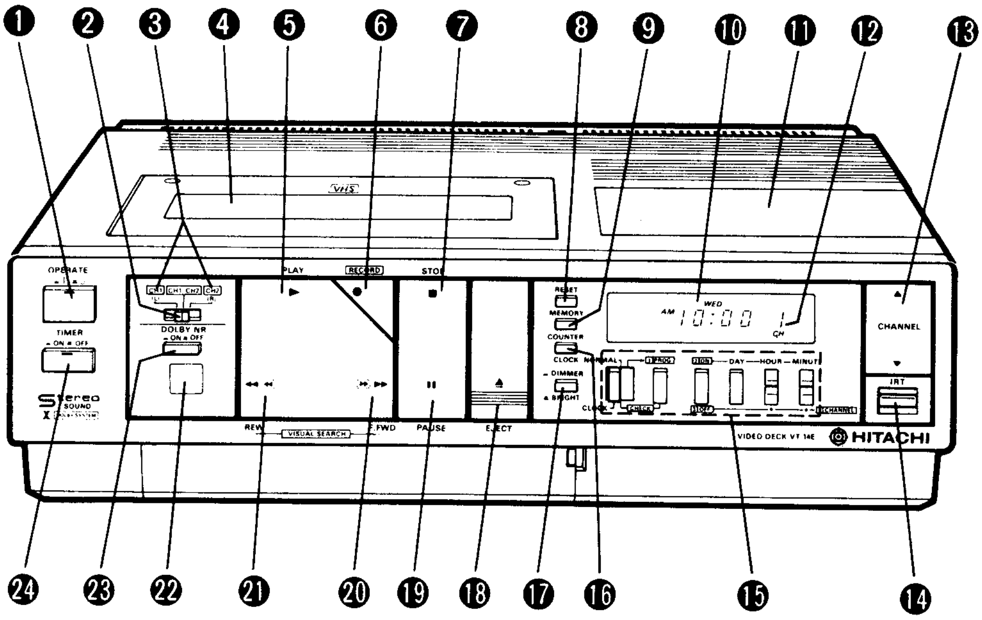
SAFETY PRECAUTION

The following precautions should be observed when servicing.

1. Since many parts in the unit have special safety-related characteristics, always use genuine Hitachi replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes.
   Critical parts are marked with ⚠ in the schematic diagram and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to a scertain that it is completely safe to operate without danger of electrical shock.

KEY TO ILLUSTRATION

[VT−14E(BS)]


1
2
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13
OPERATE
TIMER
ON ▪ OFF
Stereo SOUND
CH1
CH1 CH2
CH2
(L)
(R)
DOLBY NR
ON ▪ OFF
PLAY
RECORD
STOP
REW
VISUAL SEARCH
F.FWD
PAUSE
EJECT
RESET
MEMORY
COUNTER
CLOCK
NORMAL
DIMMER
BRIGHT
WED
AM
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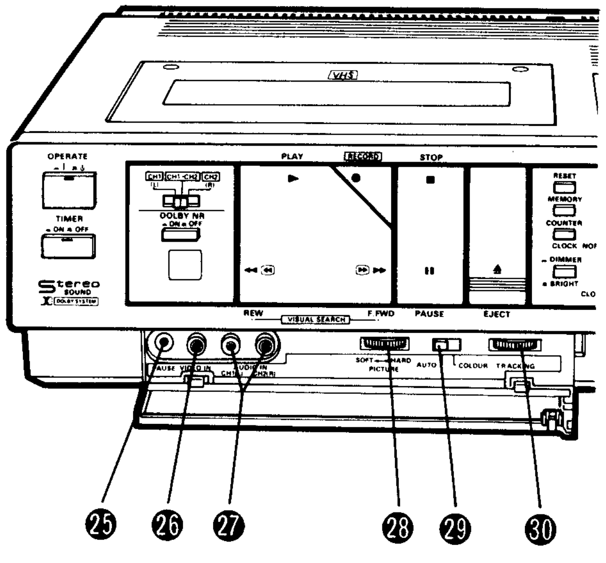
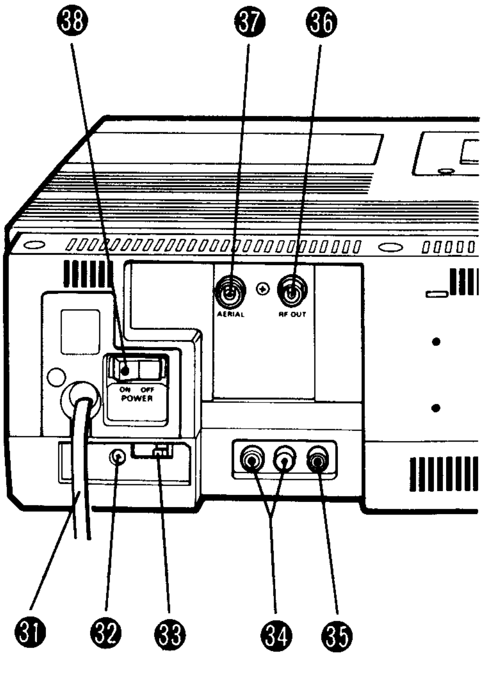

OPERATE
TIMER
ON ▪ OFF
Stereo SOUND
DOLBY SYSTEM
CH1
CH1 CH2
CH2
DOLBY NR
ON ▪ OFF
PLAY
RECORD
STOP
RESET
MEMORY
COUNTER
CLOCK
DIMMER
BRIGHT
REW
VISUAL SEARCH
F.FWD
PAUSE
EJECT
VHS
PAUSE
VIDEO IN
AUDIO IN
CH1(L)
CH2(R)
SOFT
HARD
PICTURE
AUTO
COLOUR
TRACKING
25
26
27
28
29
30


38
37
36
AERIAL
RF OUT
ON
OFF
POWER
31
32
33
34
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① **OPERATE SWITCH**
Turn system power on and off.

② **AUDIO CHANNEL SELECT SWITCH**
Select this switch when playing back a stereo tape or a tape recording of a bilingual broadcast.

③ **AUDIO CHANNEL INDICATORS**
Show the audio channel corresponding to the Audio channel select switch selected.

④ **CASSETTE HOLDER**

⑤ **PLAY BUTTON (►)**

⑥ **RECORD BUTTON (●)**
Press RECORD button and while holding RECORD, press PLAY button to record.

⑦ **STOP BUTTON (■)**
The STOP button must be pressed between "RECORD" and any other operation.

⑧ **COUNTER RESET BUTTON**
To reset counter to "0000".

⑨ **COUNTER MEMORY BUTTON**
This is useful if there is a section of tape that you want to review immediately after recording or if you want to return to the same point several times.

⑩ **ELECTRONIC DIGITAL CLOCK/COUNTER**
This shows the time with a 12-hour display and also shows tape position. Use the CLOCK/COUNTER select button to switch the display between a time indication and a counter indication.

⑪ **PRE-TUNING ACCESS DOOR**
Open this door and set the channel.

⑫ **CHANNEL INDICATOR DISPLAY**
This shows the channel number corresponding to the channel selected.

⑬ **CHANNEL SELECT BUTTON**
Select the channels you wish to view or record by pressing this button.

⑭ **INSTANT RECORDING TIMER (IRT) BUTTON**
This allows unattended recording. The timer will switch the video deck off automatically at a preselected time. This is convenient when you go out during recording.

⑮ **TIMER CONTROLS**
See page 13.

⑯ **CLOCK/COUNTER SELECT BUTTON**
Press to select clock display or tape counter display.

⑰ **DIMMER BUTTON**
Press this button and select the brightness of the timer display.

⑱ **EJECT BUTTON (⏏)**
Press to insert or remove cassette. The STOP button must be pressed before "EJECT".

⑲ **PAUSE BUTTON (II)**
Press to pause during recording or playback.
Press again to release.

⑳ **FAST FORWARD/VISUAL SEARCH BUTTON (⏩ ►►)**
Press to activate fast forward.
Press this button during playback.
Forward playback picture at high speed can be seen.

㉑ **REWIND/VISUAL SEARCH BUTTON (◄◄ ⏪)**
Press to start rewind.
Press this button during playback.
Reverse playback picture at high speed can be seen.

㉒ **INFRARED RAY RECEIVING SECTION**
Receives the infrared ray from the remote control unit.

㉓ **DOLBY NR SWITCH**
If you want to reduce high frequency hiss, press this switch in before starting recording and playback.

㉔ **TIMER SWITCH**
Press after programming Digital Clock.

㉕ **CAMERA PAUSE JACK**
Connect Camera Pause cable.

㉖ **VIDEO IN**
Receives video signal from a video camera or another VTR.

㉗ **AUDIO IN (CH1(L)/CH2(R))**
Receives audio signals from a camera, external sound equipment, or from another VTR.

㉘ **PICTURE CONTROL**
Adjust the picture so it is easiest to see.

㉙ **VIDEO MODE SWITCH**
AUTO: Circuits are automatically switched to colour or black/white mode. This position is sufficient for most purposes.
COLOUR: When recording PAL signal in an area very far from broadcasting station, the recorded picture may lose colour. In this case set to this position.

㉚ **TRACKING CONTROL KNOB**
To minimize noise in playback.

㉛ **MAINS LEAD**

㉜ **RF CHANNEL CONTROL**
Turn TEST ON/OFF SWITCH to "ON" and rotate this control to set video channel correctly.

㉝ **TEST ON/OFF SWITCH**
Turn this switch ON and check that the video channel of your TV set is correct.
After setting, set this switch to OFF.

㉞ **AUDIO OUT (CH1(L)/CH2(R))**
Permits audio connection of your units to a monitor or another VTR.

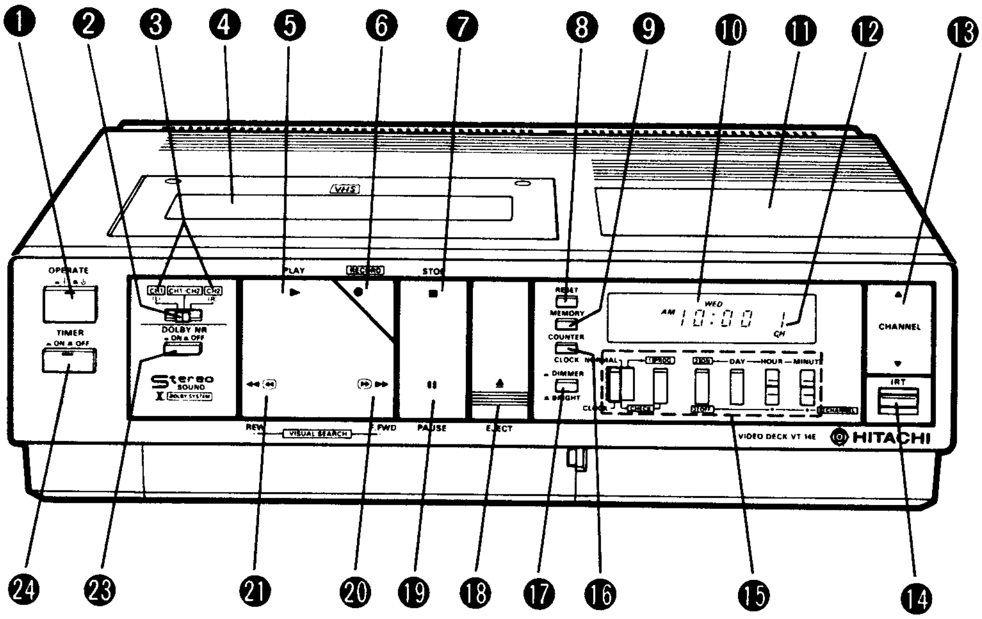
㉟ **VIDEO OUT**
Permits video connection of your unit to a monitor or another VTR.

㊱ **RF OUTPUT**
Connect to TV antenna (aerial) input.

㊲ **AERIAL INPUT SOCKET**
Connect external antenna.

㊳ **MAINS POWER SWITCH**
Mains Power switch ON-OFF.

[VT–14E]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OPERATE
TIMER
ON ■ OFF
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CH1·CH2
CH2
DOLBY NR
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Stereo SOUND
DOLBY SYSTEM
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RECORD
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VISUAL SEARCH
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PAUSE
EJECT
VHS
RESET
MEMORY
COUNTER
CLOCK
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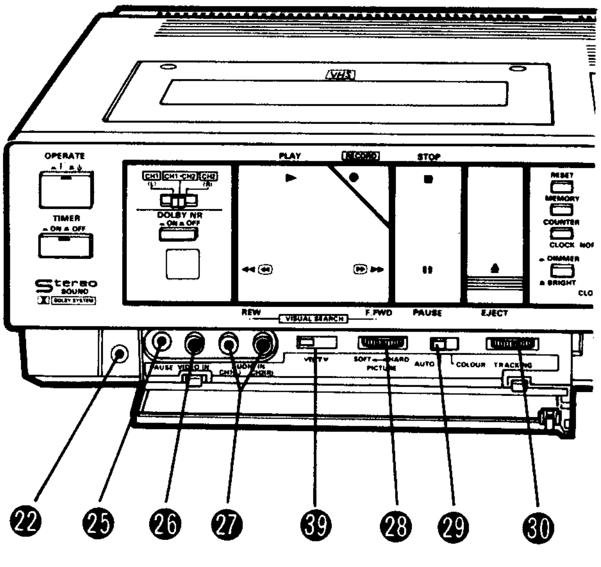
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AUDIO IN
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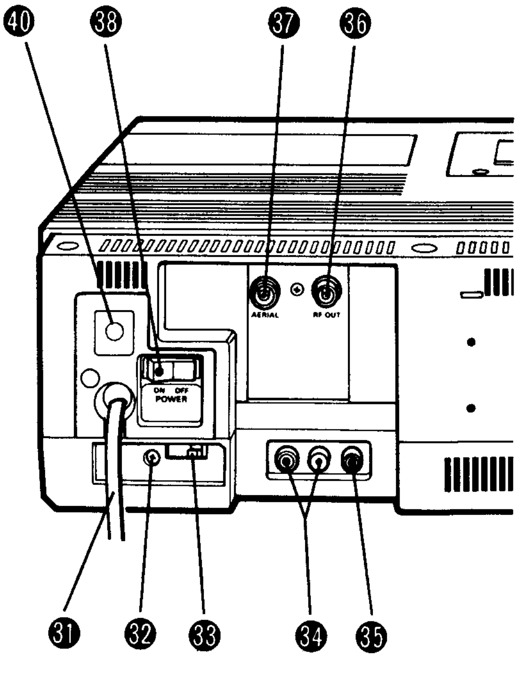
PICTURE
AUTO
COLOUR
TRACKING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ON OFF
POWER
AERIAL
RF OUT

① OPERATE SWITCH
Turn system power on and off.

② AUDIO CHANNEL SELECT SWITCH
Select this switch when playing back a stereo tape or a tape recording of a bilingual broadcast.

③ AUDIO CHANNEL INDICATORS
Show the audio channel corresponding to the Audio channel select switch selected.

④ CASSETTE HOLDER

⑤ PLAY BUTTON (►)

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Press RECORD button and while holding RECORD, press PLAY button to record.

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The STOP button must be pressed between "RECORD" and any other operation.

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To reset counter to "0000".

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Open this door and set the channel.

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This shows the channel number corresponding to the channel selected.

⑬ CHANNEL SELECT BUTTON
Select the channels you wish to view or record by pressing this button.

⑭ INSTANT RECORDING TIMER (IRT) BUTTON
This allows unattended recording. The timer will switch the video deck off automatically at a preselected time. This is convenient when you go out during recording.

⑮ TIMER CONTROLS
See page 13.

⑯ CLOCK/COUNTER SELECT BUTTON
Press to select clock display or tape counter display.

⑰ DIMMER BUTTON
Press this button and select the brightness of the timer display.

⑱ EJECT BUTTON (⏏)
Press to insert or remove cassette. The STOP button must be pressed before "EJECT".

⑲ PAUSE BUTTON (❚❚)
Press to pause during recording or playback.
Press again to release.

⑳ FAST FORWARD/VISUAL SEARCH BUTTON (⏩ ►►)
Press to activate fast forward.
Press this button during playback.
Forward playback picture at high speed can be seen.

㉑ REWIND/VISUAL SEARCH BUTTON (◄◄ ⏪)
Press to start rewind.
Press this button during playback.
Reverse playback picture at high speed can be seen.

㉒ REMOTE CONTROL JACK
Connect remote control unit.

㉓ DOLBY NR SWITCH
If you want to reduce high frequency hiss, press this switch in before starting recording and playback.

㉔ TIMER SWITCH
Press after programming Digital Clock.

㉕ CAMERA PAUSE JACK
Connect Camera Pause cable.

㉖ VIDEO IN
Receives video signal from a video camera or another VTR.

㉗ AUDIO IN (CH1(L)/CH2(R))
Receives audio signals from a camera, external sound equipment, or from another VTR.

㉘ PICTURE CONTROL
Adjust the picture so it is easiest to see.

㉙ VIDEO MODE SWITCH
AUTO: Circuits are automatically switched to colour or black/white mode. This position is sufficient for most purposes.
COLOUR: When recording PAL signal in an area very far from broadcasting station, the recorded picture may lose colour. In this case set to this position.

㉚ TRACKING CONTROL KNOB
To minimize noise in playback.

㉛ MAINS LEAD

㉜ RF CHANNEL CONTROL
Turn TEST ON/OFF SWITCH to "ON" and rotate this control to set video channel correctly.

㉝ TEST ON/OFF SWITCH
Turn this switch ON and check that the video channel of your TV set is correct.
After setting, set this switch to OFF.

㉞ AUDIO OUT (CH1(L)/CH2(R))
Permits audio connection of your units to a monitor or another VTR.

㉟ VIDEO OUT
Permits video connection of your unit to a monitor or another VTR.

㊱ RF OUTPUT
Connect to TV antenna (aerial) input.

㊲ AERIAL INPUT SOCKET
Connect external antenna.

㊳ MAINS POWER SWITCH
Mains Power switch ON-OFF.

㊴ INPUT SELECTOR SWITCH
Select this switch to appropriate position.

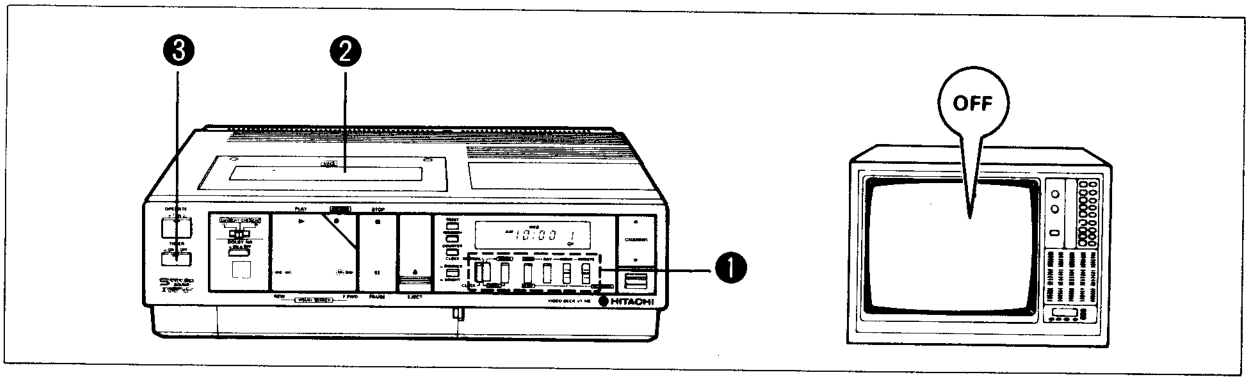
㊵ AUDIO/VIDEO JACK
Connect this jack to the A/V jack on TV with Audio/video Cable (Optional Accessory).

SETTING THE TIMER

The timer indication method differs between the VT-14E and VT-14E(BS). For discrimination between "Morning" and Afternoon", the VT-14E(BS) has an AM/PM indicator while the VT-14E uses a 24-hour clock.
Time and programme setting procedures are the same except for the indication shown above.
Time and programme setting procedures are shown below using the VT-14E(BS) as an example.

TIMER RECORDING (UNATTENDED RECORDING)

The programmable electronic clock/timer permits the unattended recording of up to 6 preselected programmes. It can be preset up to 14 days in advance to record your favorite programmes. It turns the unit on and off and changes channels automatically.



❶ Set the programme timer.
"START (ON) TIME", "STOP (OFF) TIME", "DAY" etc.
See next page.

❷ Insert the Cassette.
Be sure to check that the record safety tab is not missing. If the record safety tab is missing, recording will not begin.

❸ Set TIMER switch of video deck to ON. Now recording will begin automatically at the start time.

Note:
- It is not necessary to press PLAY and RECORD buttons.
- When the TIMER switch is on, your video deck cannot be operated manually.
- **If the record safety tab is missing, the timer indicator will flash to warn you.**
- If you want to stop during recording with the timer, set the TIMER switch to OFF then press the STOP button.

To monitor programme to be recorded

1. Turn on TV and set the channel of your TV to CH37 (for your video channel).
2. Turn off TIMER switch and turn on OPERATE switch of video deck.
3. Press CHANNEL select button to the channel to be recorded.
4. After checking the programme, turn off TV and set the TIMER switch of video deck to ON.

TO SET CLOCK FOR PRESENT TIME OF DAY

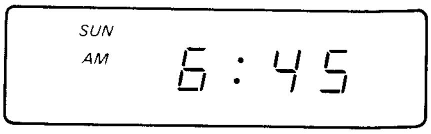
❶ Set MODE selector switch to "CLOCK".

❷ Press DAY button to select present day of the week. Day indicators (SUN through SAT) light, in sequence, across top of Digital Display.

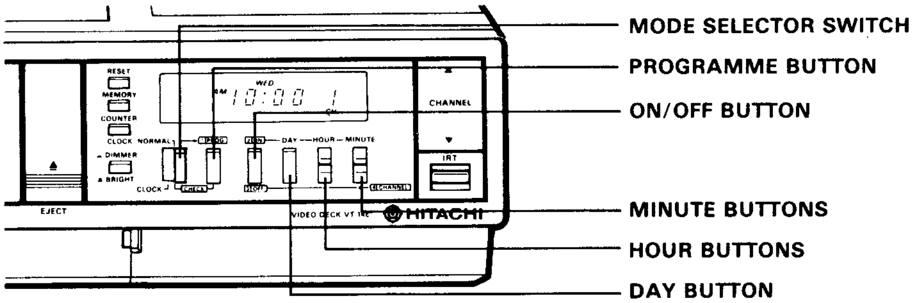
❸ Press HOUR buttons (forward or reverse) to select correct hour. Hold buttons down to advance rapidly. Be sure AM/PM indicator is correct.

❹ Press MINUTE buttons (forward or reverse) to select correct minute. Hold buttons down to advance rapidly.

❺ Set MODE selector switch to "NORMAL".
For example, for Sunday 6:45 AM, the Digital Display will appear as shown:



Note: 12:00 A.M. is midnight; 12:00 P.M. is noon.



TO SET THE PROGRAMMABLE TIMER

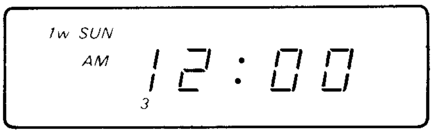
For unattended recording the Timer needs to know what **day** to make the recording, the **time to start**, the **time to stop**, and the **channel to be recorded**.

❶ Set MODE selector switch to "PROG". Programme indicators (1 through 5, and W) flash to indicate which memory positions have not been programmed. If a memory has been programmed, the indicator will not flash.
Note: You should determine which memory positions have not been programmed before entering new programming information. New information automatically erases previous programming.

❷ Press the PROGRAMME button until desired Programme indicator lights. Programme indicators (1 through 5, and W) light, in sequence, across bottom of Digital Display. ON indicator flashes to tell you to press the ON/OFF button.

❸ Press the ON/OFF button. The present day and 12:00 A.M. will appear on the display until you enter day and start time information.

❹ Select the day of recording by pressing the DAY button until desired Day indicator lights. **Make sure desired Week indicator (1W or 2W) lights.** Continuing forward will advance Timer to Week Two. For example, programme memory 3, Sunday, Week One will appear as shown:



❺ Select the hour for recording to start by pressing the HOUR buttons (forward or reverse). Hold down buttons to advance rapidly. Make sure AM/PM indicator is correct.

❻ Select the minute for recording to start by pressing the MINUTE buttons (forward or reverse). Hold down buttons to advance rapidly.

❼ Press the ON/OFF button. "OFF" lights. Then set the stop time using the HOUR and MINUTE buttons. (Keep in mind that the maximum recording time without changing cassettes is 4 hours.)

❽ Choose the channel to be recorded by pressing the CHANNEL select button. The channel number indicates on the display.

❾ To set the next programme, repeat steps 2 through 8.

❿ Turn on TIMER switch. (It is not necessary to press PLAY and RECORD buttons.)

⓫ To again show the present time of day on the Digital Display, set the MODE selector switch to "NORMAL".
MODE selector switch must be in "NORMAL" position or clock will not show present time of day.
Note: When Timer is on (red indicator light on), your video deck cannot be operated manually.

TO RECORD AT THE SAME TIME AND DAY EVERY WEEK

❶ Set MODE selector switch to "PROG".

❷ Press the PROGRAMME button until Programme indicator "W" lights.

❸ Continue programming as explained in steps 3 – 11 of "TO SET THE PROGRAMMABLE TIMER", on page 13.

TO RECORD AT THE SAME TIME EVERY DAY OF THE WEEK

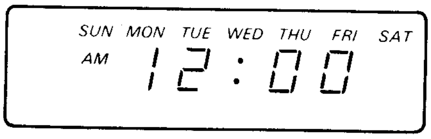
❶ Set MODE selector switch to "PROG".

❷ Press the PROGRAMME button until desired Programme indicator (1 – 5) lights. ON indicator flashes to tell you to press the ON/OFF button.

❸ Press the ON/OFF button.

❹ Select every day of the week by pressing the DAY button until all Day indicators light.

❺ Continue programming as explained in steps 5 – 11 of "TO SET THE PROGRAMMABLE TIMER", on page 13.



Programming errors

If programmes overlap, the video deck will select the programme with the earliest start time. When that programme is over, the video deck will switch to the next programme. If start times are the same, the video deck will select the programmes in numerical order.

To correct programme errors

It is possible to correct the programme information when you find an error before returning the MODE selector switch to "NORMAL". When the display indicates the stop time, stop time and channel for recording can be corrected. The start time and day for recording can be corrected when the start time is indicated. The start time and stop time indications are displayed alternately by pressing the ON/OFF button.

To clear a programme

❶ Set MODE selector switch to "PROG".

❷ Press PROGRAMME button until desired Programme indicator lights.

❸ The programme will be erased when the ON/OFF button is pressed.

To check programme

❶ Set MODE selector switch to "NORMAL/CHECK".

❷ Press PROGRAMME button. Programme indicator "1" lights. The ON indicator lights and the Digital Clock/Timer Display shows the start time. Then the OFF indicator lights and the display shows the stop time. The appropriate channel number lights. Display returns to present time of day.

❸ Press the PROGRAMME button again to check other programmes.

DISASSEMBLY

1. REMOVING THE CASE

1-1 Programme preset cover (Fig. 1)

1. Open the channel preset cover and pull it in the direction of arrow ① to remove it.

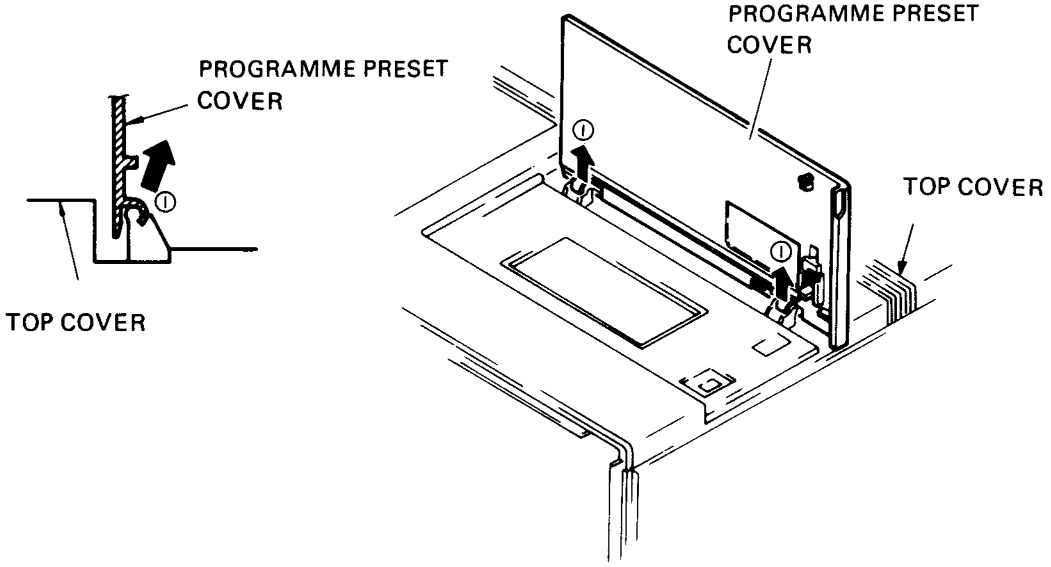

PROGRAMME PRESET COVER
①
TOP COVER
PROGRAMME PRESET COVER
①
①
TOP COVER

Fig. 1

1-2 Top cover (Fig. 2)

1 Remove the 3 screws (1).
2 Lift the rear of the top cover first, and then lift the whole top cover to remove it.

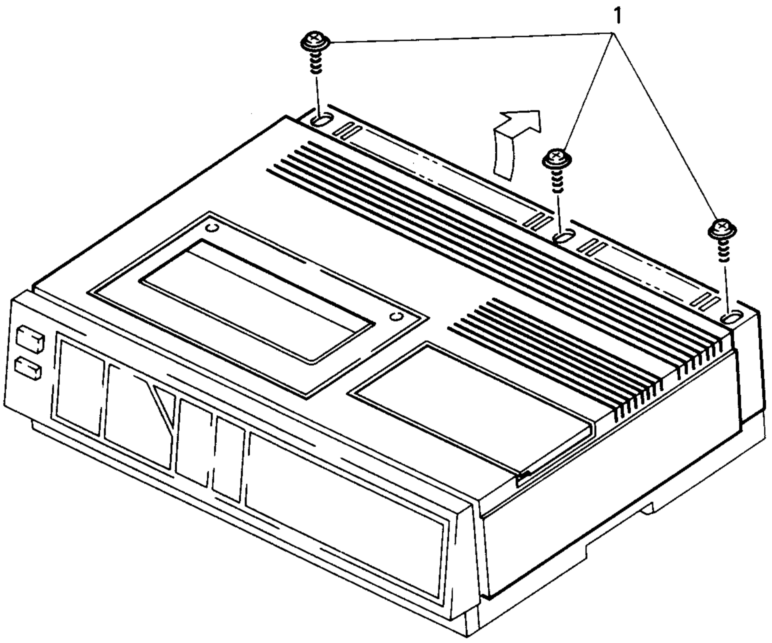


Fig. 2

1-3 Bottom cover (Fig. 3)

1. Remove the 7 screws (2-1, 2-2)

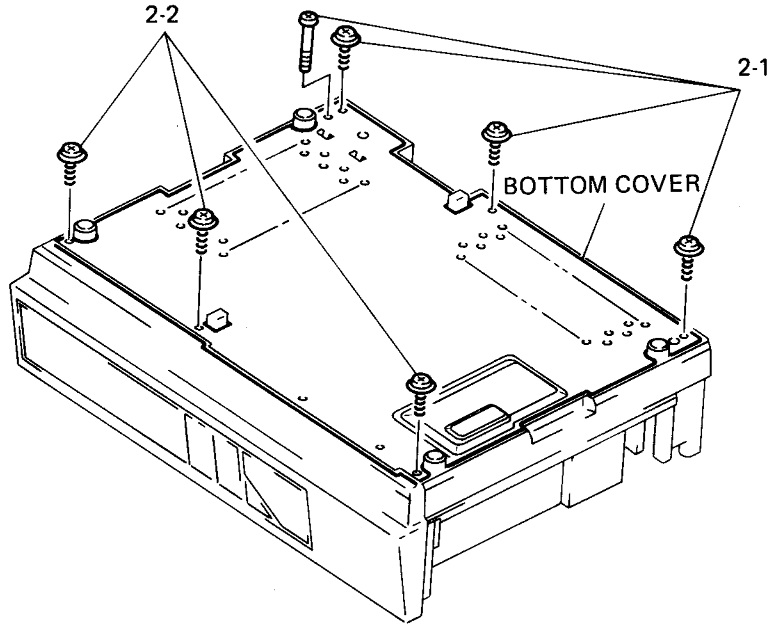

2-2
2-1
BOTTOM COVER

Fig. 3

1-4 Front panel (Fig. 4)

1 Remove the top cover. (Refer to Item 1-2)

2 Remove the 3 screws (2-2) shown in Fig. 3 and the 3 screw (3) shown in Fig. 4.

3 Remove the stoppers (4) at 4 positions from the deck frame.

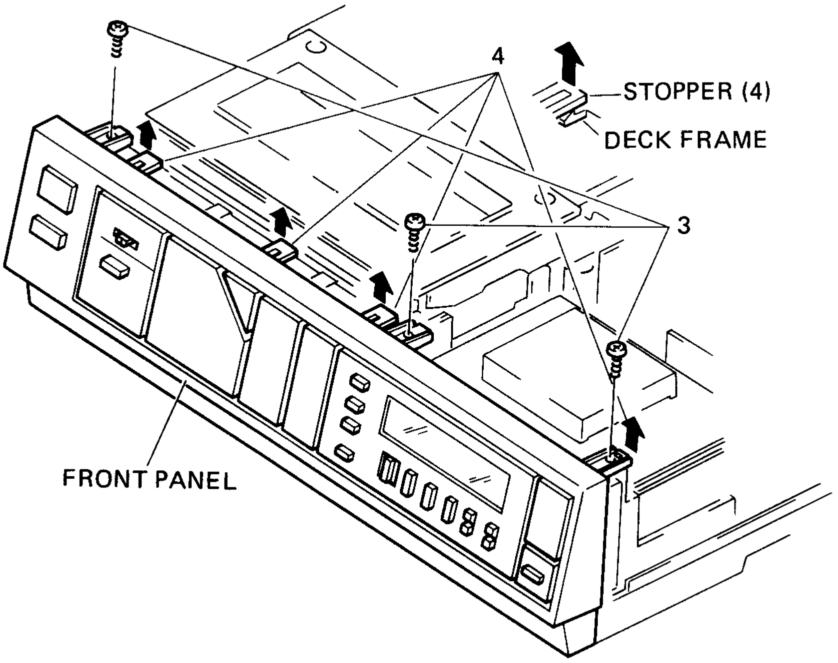

4
STOPPER (4)
DECK FRAME
3
FRONT PANEL

Fig. 4

1-5 Cassette lid (Fig. 5)

1 Remove the 2 screws (5).
2 Open the cassette holder, lift the rear of the cassette lid a little and pull it toward you.

* Assemble the cassette lid in the reverse procedure of the above.

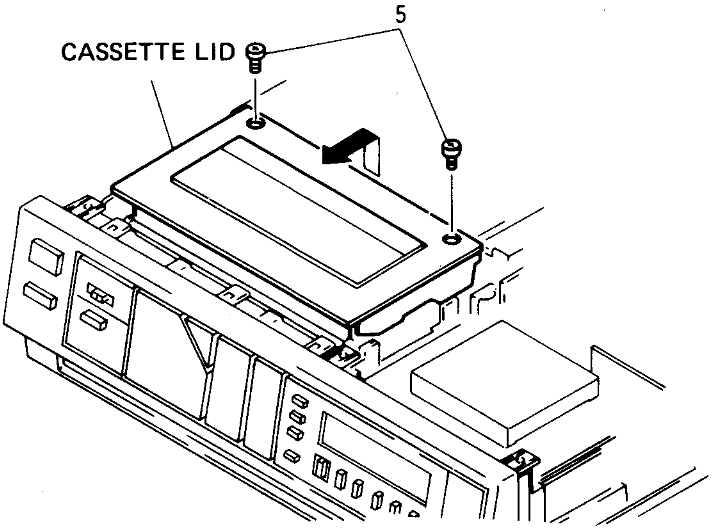

5
CASSETTE LID

Fig. 5

2. REMOVING THE PC BOARDS

2-1 Names and locations of the PC Boards

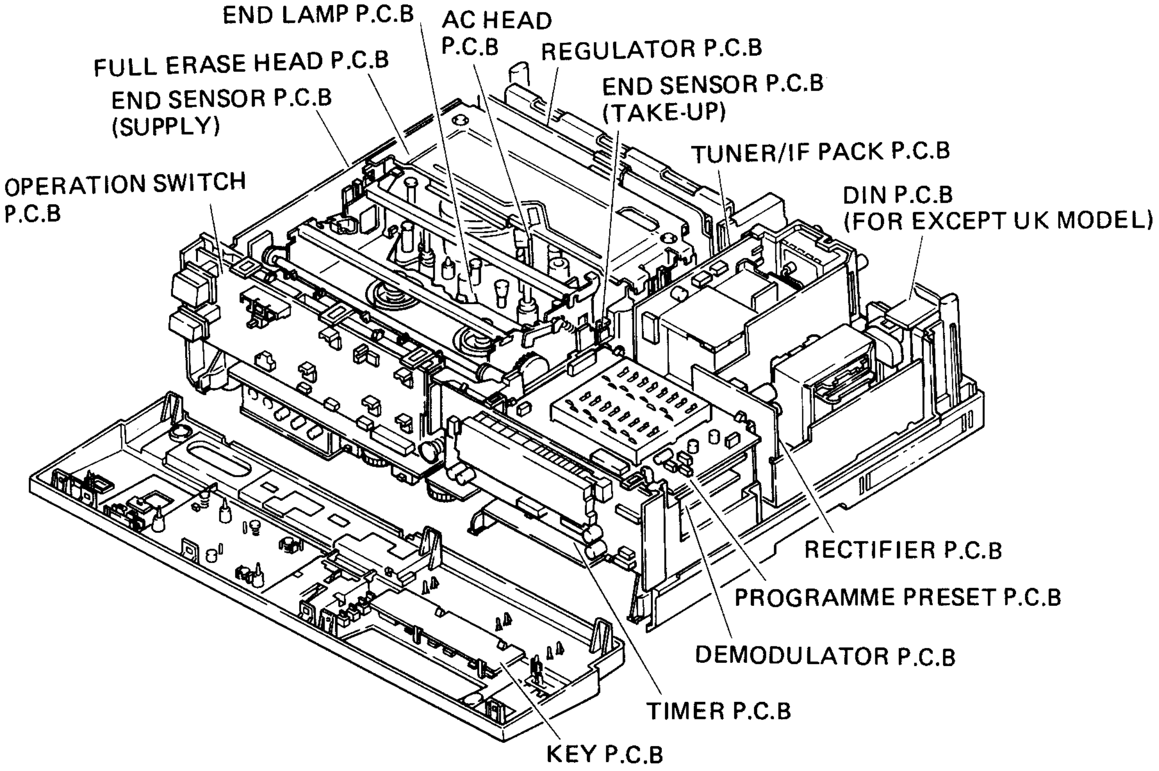

END LAMP P.C.B
AC HEAD P.C.B
REGULATOR P.C.B
FULL ERASE HEAD P.C.B
END SENSOR P.C.B (SUPPLY)
END SENSOR P.C.B (TAKE-UP)
TUNER/IF PACK P.C.B
OPERATION SWITCH P.C.B
DIN P.C.B (FOR EXCEPT UK MODEL)
RECTIFIER P.C.B
PROGRAMME PRESET P.C.B
DEMODULATOR P.C.B
TIMER P.C.B
KEY P.C.B

Fig. 6

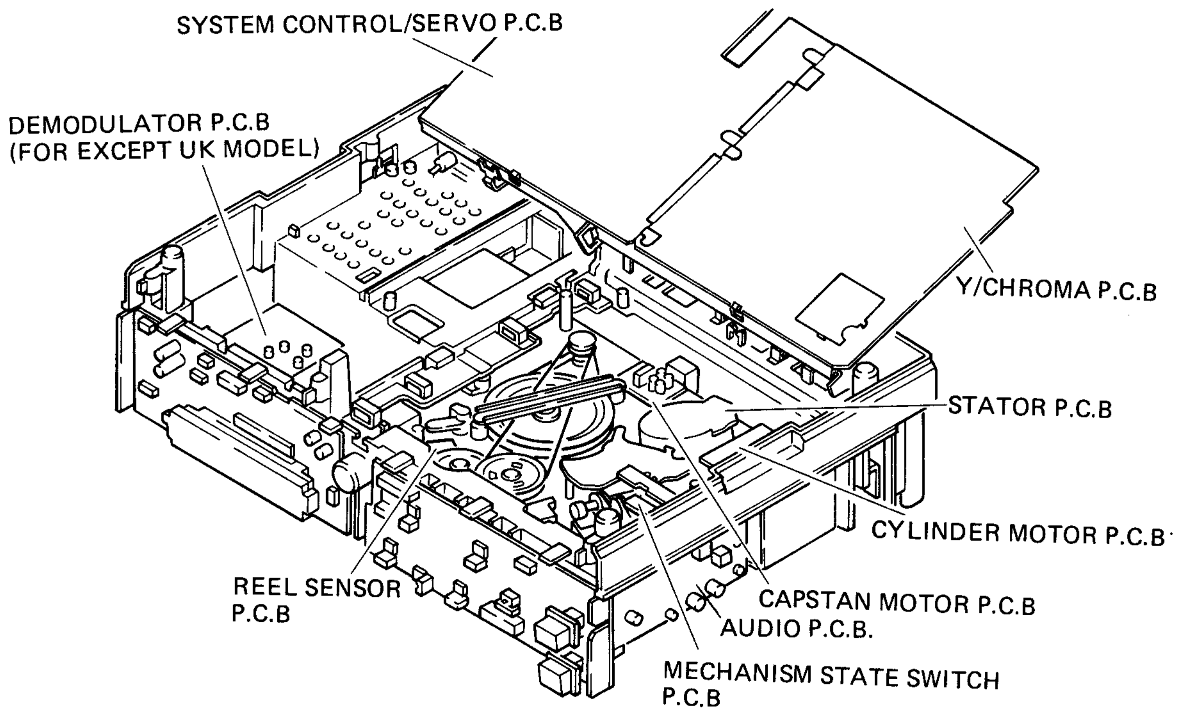

SYSTEM CONTROL/SERVO P.C.B
DEMODULATOR P.C.B
(FOR EXCEPT UK MODEL)
Y/CHROMA P.C.B
STATOR P.C.B
CYLINDER MOTOR P.C.B
REEL SENSOR
P.C.B
CAPSTAN MOTOR P.C.B
AUDIO P.C.B.
MECHANISM STATE SWITCH
P.C.B

Fig. 7

2-2 Operation switch PC Board (Fig. 8)

1. Remove the top cover. (Item 1-2)
2. Remove the front panel. (Item 1-4)
3. To remove the PC Board, push up the 3 stoppers (6), which attach the operation switch PC Board, in the direction of the arrow, to release engagement between the PC Board and the stoppers (7).

* Assemble the operation switch PC Board in the reverse procedure of disassembly, and check that all operation switches work normally after assembly.

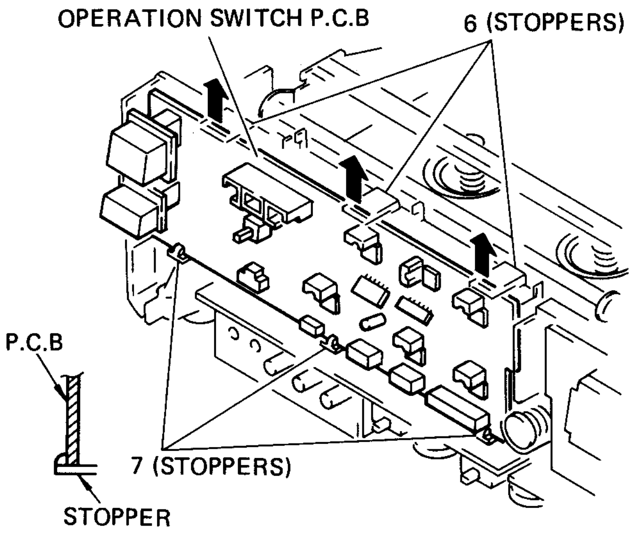

OPERATION SWITCH P.C.B
6 (STOPPERS)
P.C.B
7 (STOPPERS)
STOPPER

Fig. 8

2-3 Programme preset PC Board (Fig. 9)

1. Remove the top cover. (Item 1-2)
2. Remove the front panel. (Item 1-4)
3. Remove the 2 connectors (8) of the programme preset PC Board.
4. Push the 4 stoppers (9), which attach the programme preset PC Board, in the direction of the arrow to release the engagement between the PC Board and stoppers.

* Assemble the channel preset PC Board in the reverse procedure of disassembly.

2-4 Timer PC Board (Fig. 10)

1. Remove the top cover (Item 1-2)
2. Remove the front panel (Item 1-4)
3. To remove the PC Board. Push up the 2 stoppers (10-1), which attach the timer PC Board, in the direction of the arrow, to release engagement between the PC Board and the 2 stoppers (10-2).

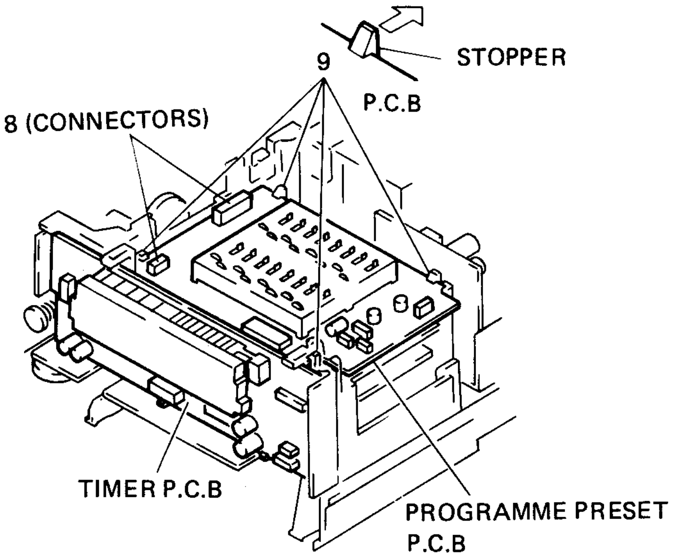

STOPPER
9
P.C.B
8 (CONNECTORS)
TIMER P.C.B
PROGRAMME PRESET
P.C.B

Fig. 9

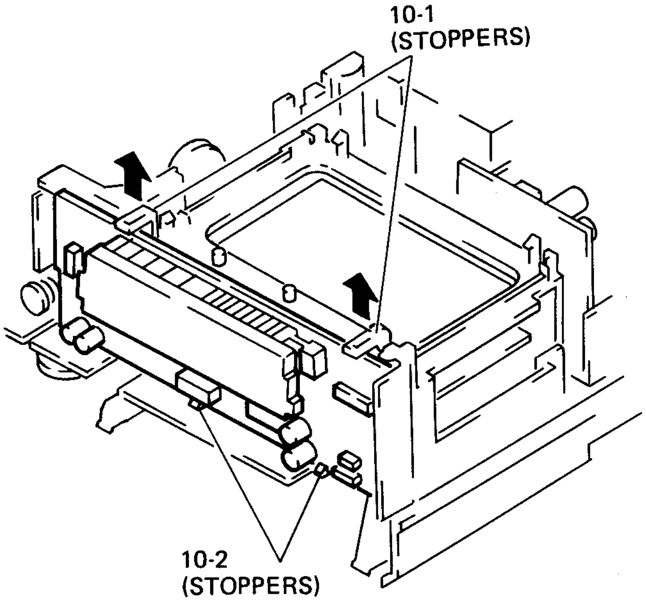

10-1
(STOPPERS)
10-2
(STOPPERS)

Fig. 10

2-5 Rectifier PC Board (Fig. 11)

1. Remove the top cover. (Item 1-2)
2. Lift the PC Board in the direction of arrow Ⓐ to remove it.

2-6 Tuner/IF pack (Fig. 11)

1. Remove the top cover. (Item 1-2)
2. Remove the 3 connectors (11).
3. Remove the 3 screws (12).

* Assemble the tuner/IF pack in the reverse procedure of disassembly.

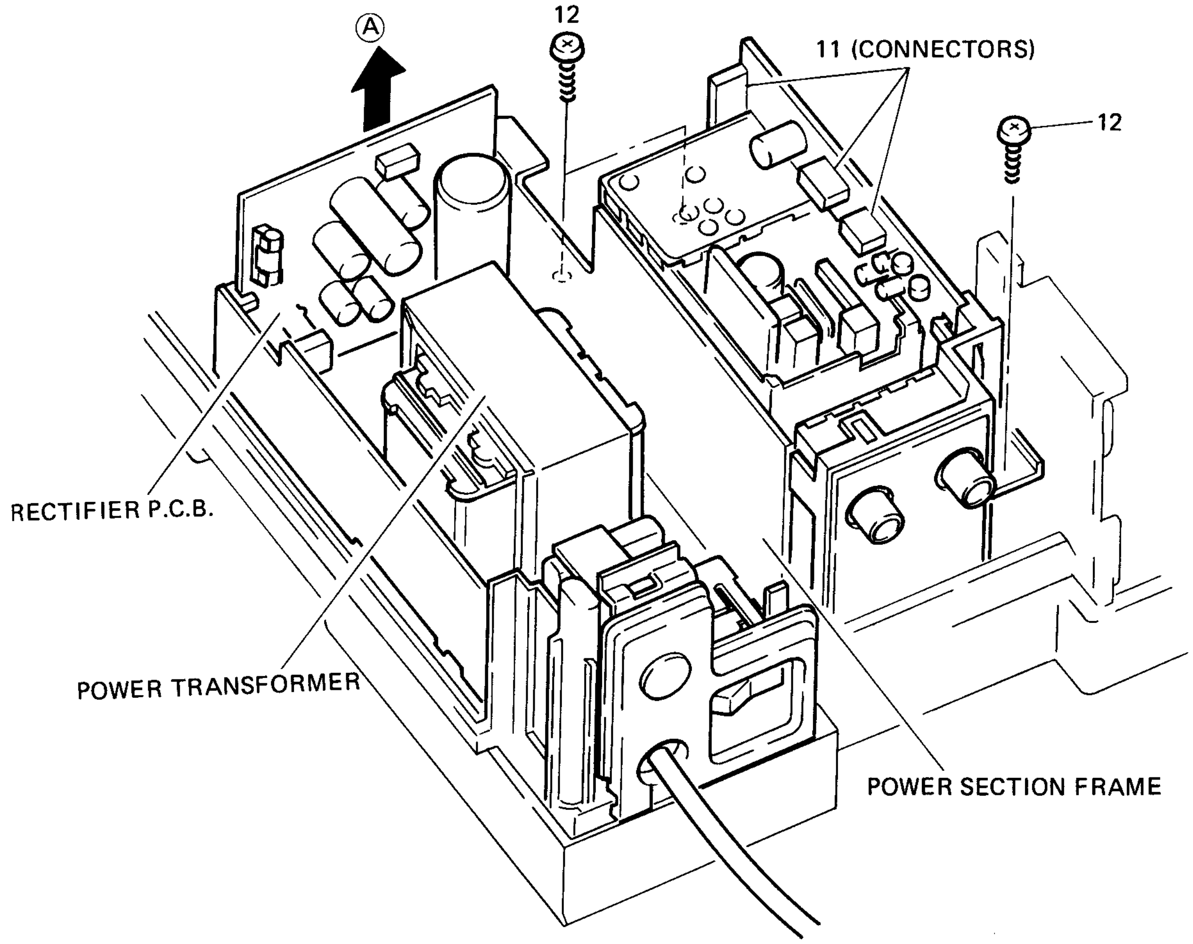

Ⓐ
12
11 (CONNECTORS)
12
RECTIFIER P.C.B.
POWER TRANSFORMER
POWER SECTION FRAME

Fig. 11

2-7 Regulator PC Board (Fig. 12)

1. Remove the top cover. (Item 1-2)
2. Lift the PC Board holder (13) in the direction of the arrow to release engagement (14) between the PC Board and the stoppers, and then lift the PC Board in the direction of arrow (A) to remove it.

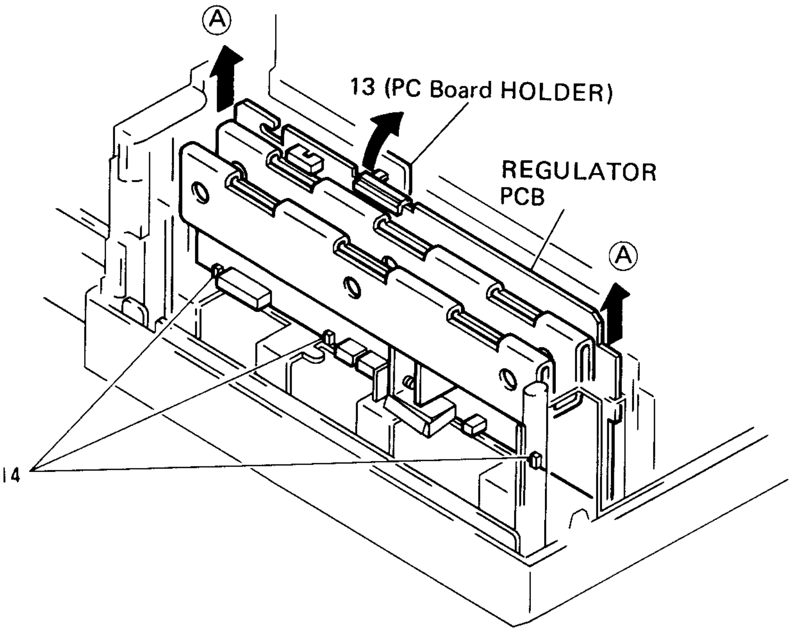

Ⓐ
13 (PC Board HOLDER)
REGULATOR PCB
Ⓐ
14

Fig. 12

2-8 System control/Servo PC Board, Y/Chroma PC Board (Fig. 14)

1. Remove the top cover. (Item 1-2)
2. Remove the bottom cover. (Item 1-3)
3. Remove the front panel. (Item 1-4)
4. Remove the 5 screws (15).
5. After releasing the 2 stoppers (16), lift up the PC Board in the direction of the arrow to open it.

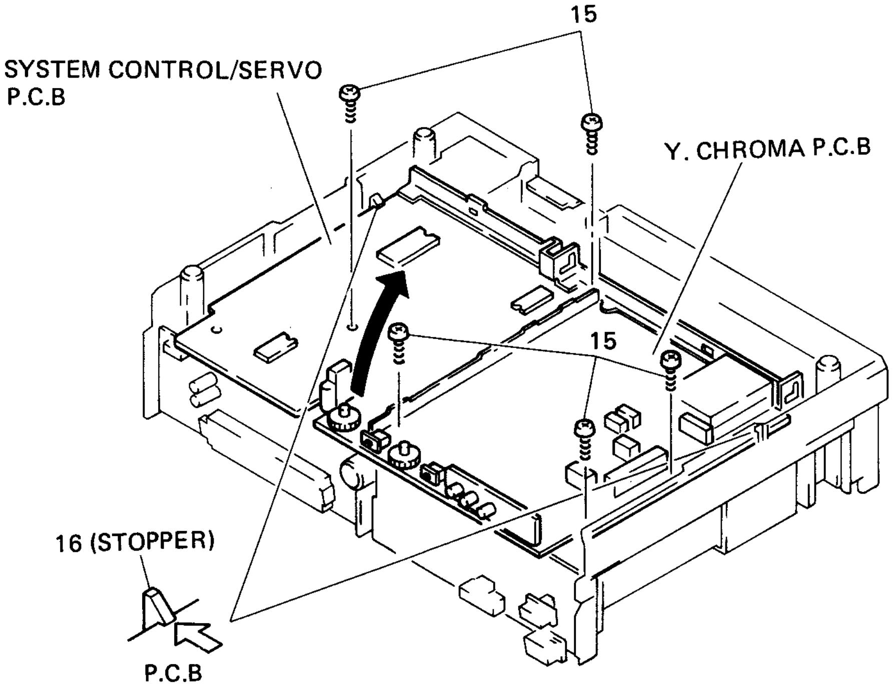

15
SYSTEM CONTROL/SERVO P.C.B
Y. CHROMA P.C.B
15
16 (STOPPER)
P.C.B

Fig. 13

2-9 Audio PC Board (Fig. 14)

1. Remove the top cover (Item 1-2)
2. Remove the front panel. (Item 1-4)
3. After releasing the 2 stoppers (17), lift up the PC Board in the direction of the arrow to open it.

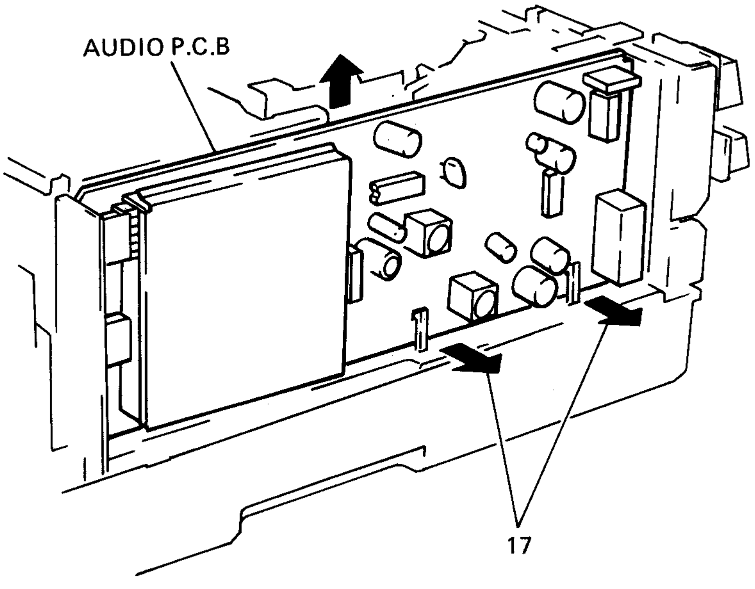


Fig. 14

2-10 Demodulator PC Board (Fig. 15) (Except For UK-model)

1. Remove the top cover. (Item 1-2)
2. Remove the bottom cover. (Item 1-3)
3. Remove the front panel (Item 1-4)
4. Remove the 2 screws (18).

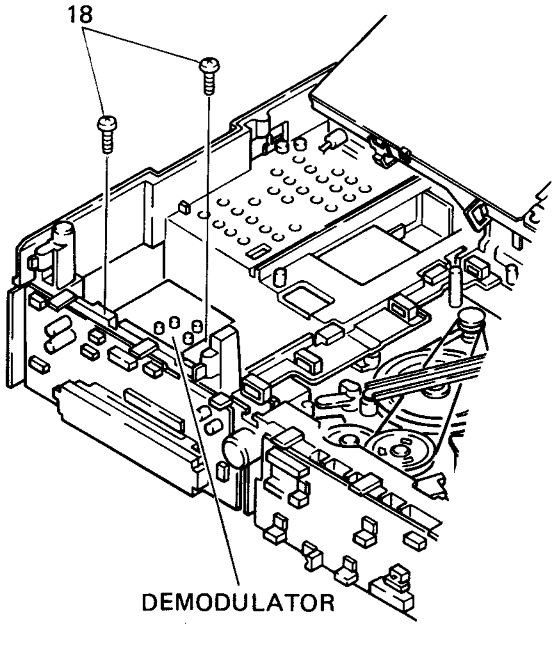


Fig. 15

CHASSIS BLOCK

SERVICING JIGS AND TOOLS

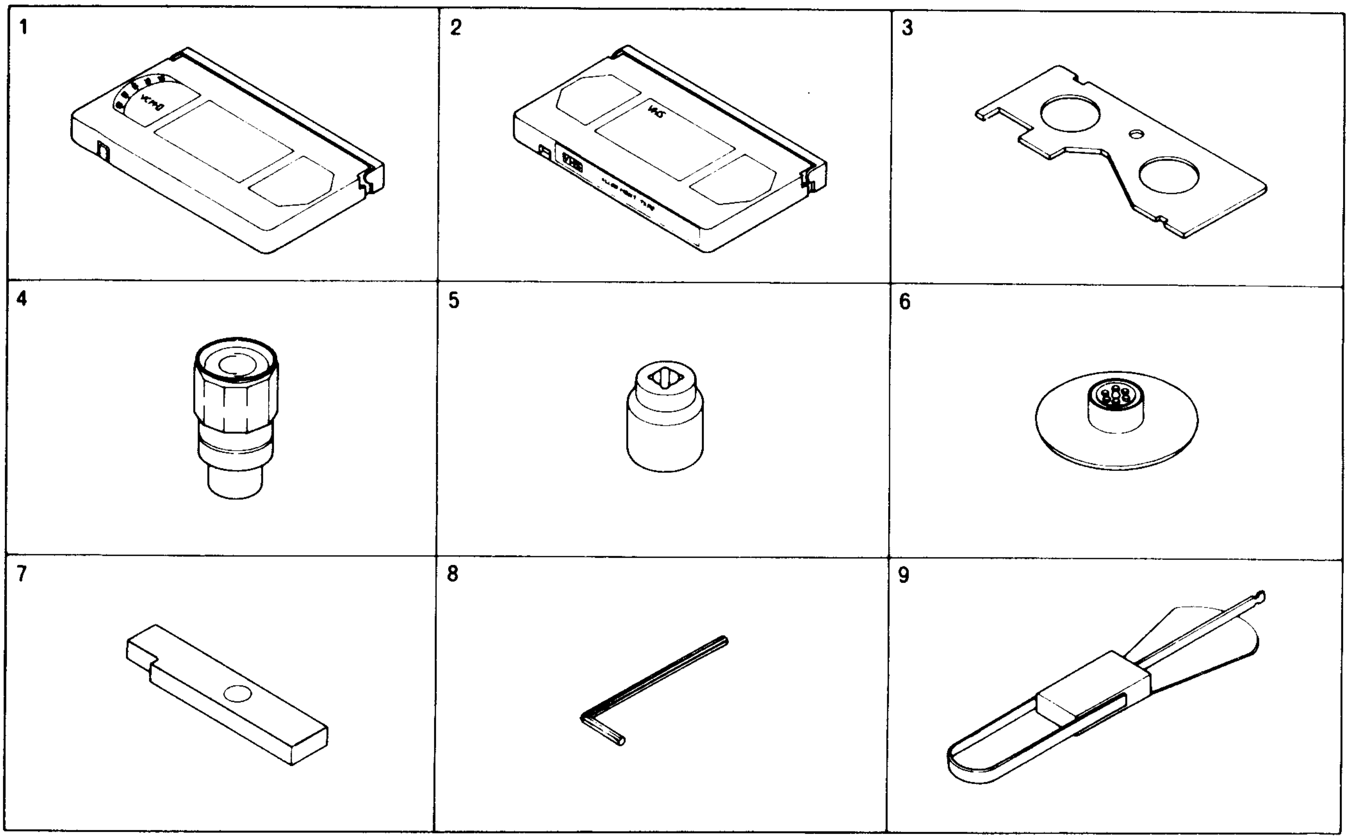


Fig. 16

ITEM	PARTS NAME		PARTS NO.
1.	Back tension meter		7099004
2.	Alignment tape	(NTSC)	7099046
		(PAL)	7099052
		(SECAM)	7099053
3.	Height reference plate (Master plane)		7099041
4.	Torque gauge		7099039
5.	Torque gauge adaptor		7099035
6.	Dummy reel		7099043
7.	Reel disk height jig		7099001
8.	1.5 mm hexagonal wrench		———
9.	Fan type tension gauge		———

3. NAMES AND LOCATIONS OF MAIN CHASSIS PARTS

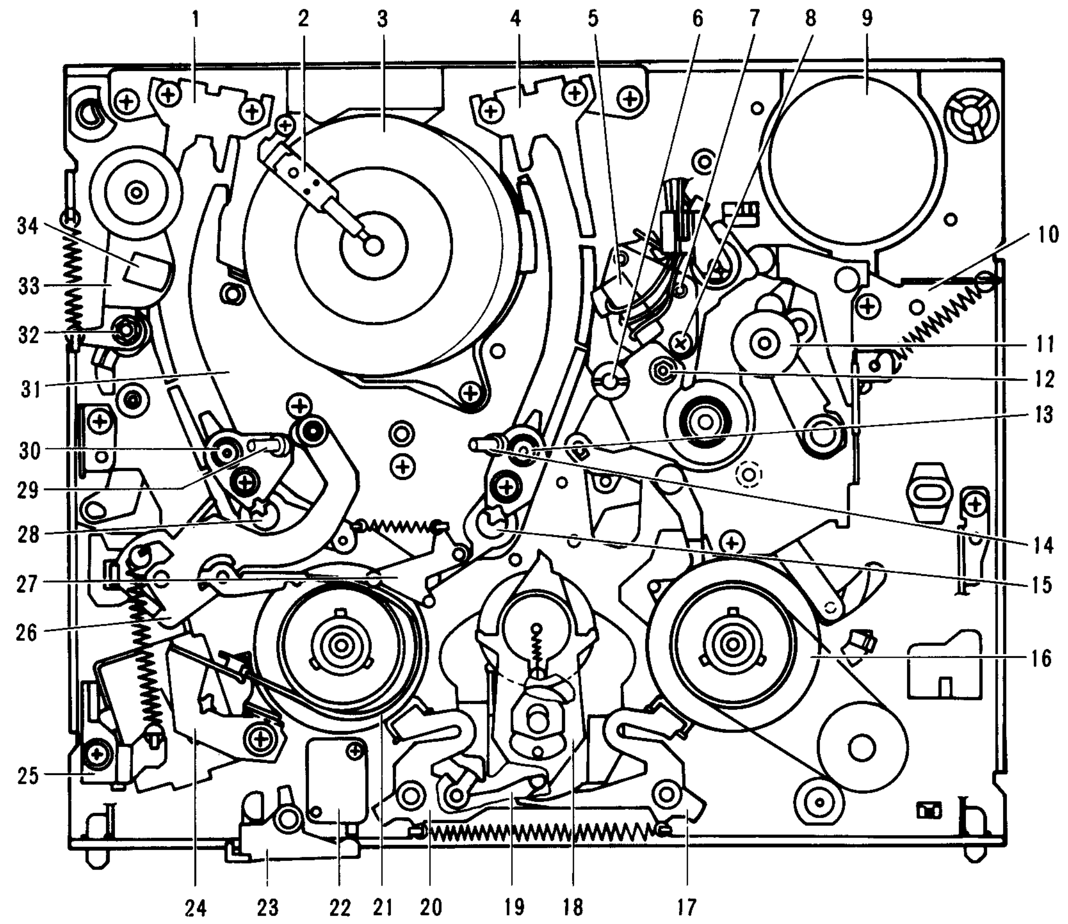


Fig. 17

1. Catcher (Supply)
2. Cylinder motor brush
3. Video head (Upper cylinder)
4. Catcher (Take-up)
5. AC head (Audio control head)
6. X value adjusting screw
7. Tilt adjusting screw
8. Azimuth adjusting screw
9. Capstan motor ass'y
10. Arm braket ass'y
11. Pressure roller ass'y
12. Guide pole (Tape guide)
13. Guide roller (Take-up)
14. Inclined guide (Take-up)
15. Guide roller base (Take-up)
16. Take-up reel disk
17. Main brake (Take-up)
18. FF/REW idler arm ass'y
19. Brake conversion arm
20. Main brake (Supply)
21. Supply reel disk
22. Safety tab switch
23. Record prevention arm
24. Tension band ass'y (Tension band, tension bracket)
25. Spring holder (Spring hanger)
26. Tension arm
27. Sub-brake

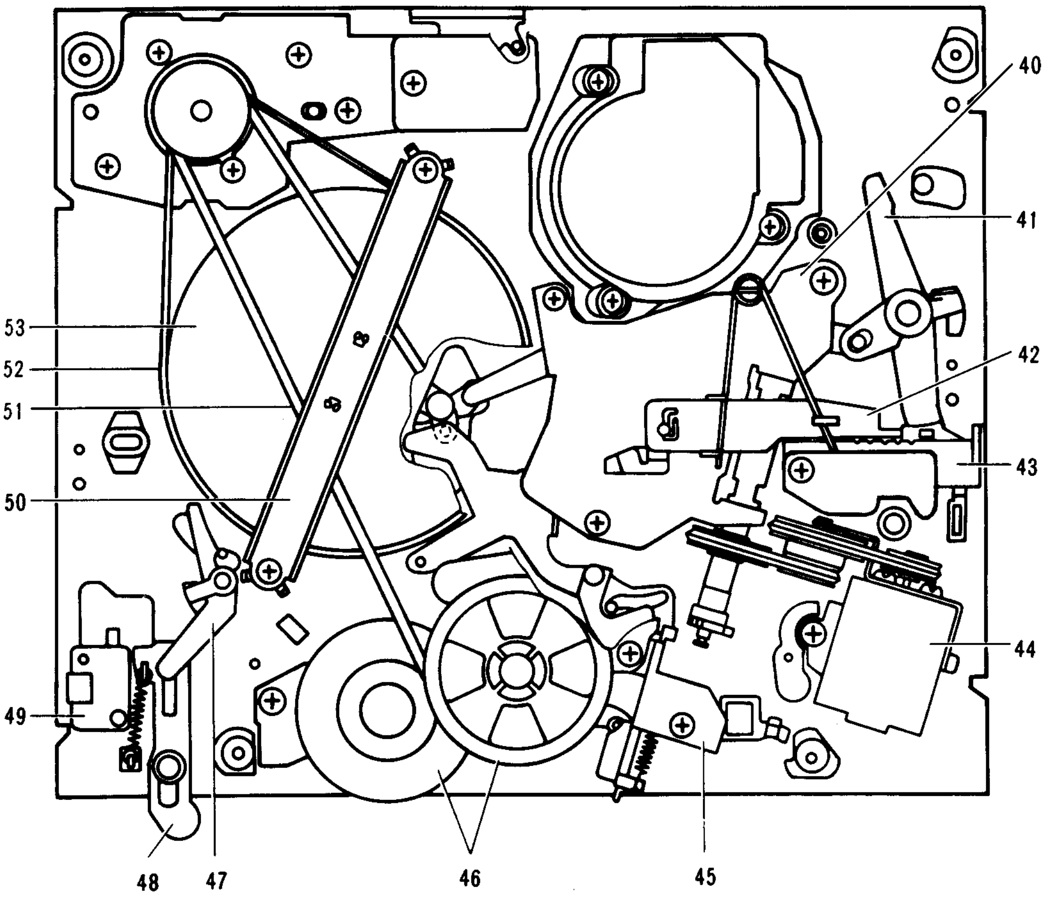


Fig. 18

28. Guide roller base (Supply)
29. Inclined guide (Supply)
30. Guide roller (Supply side)
31. Guide base clamp plate
32. Guide pole (Supply side)
33. Impedance roller arm ass'y
34. FE head (Full erase head)

40. Loading gear ass'y
41. Tension release arm 2
42. Mode slider
43. Mechanism state switch
44. Loading motor ass'y
45. Brake slider ass'y
46. Clutch plate ass'y
47. Eject hold arm
48. Eject holder switch
49. Cassette holder switch
50. Flywheel support plate
51. Reel belt
52. Flywheel belt
53. Flywheel ass'y

4. BEFORE DISASSEMBLING PARTS

The parts shown below are fixed in the factory using precision jigs so be sure not to loosen their screws or remove them.

1) Take-up/supply catchers and fixing screws.
2) Inclined guide and its fixing screws.
   Do not turn the adjusting screws shown below when removing adjacent parts.
3) Take-up/supply guide pole height adjusting nut.
4) Take-up/supply guide roller height adjusting nut.
5) AC head X value adjusting screw.
6) AC head tilt adjusting screw.
7) AC head azimuth adjusting screw.
8) AC head height adjusting nut.
9) Back tension adjusting spring holder fixing screw.
10) Tension band fixing screw.

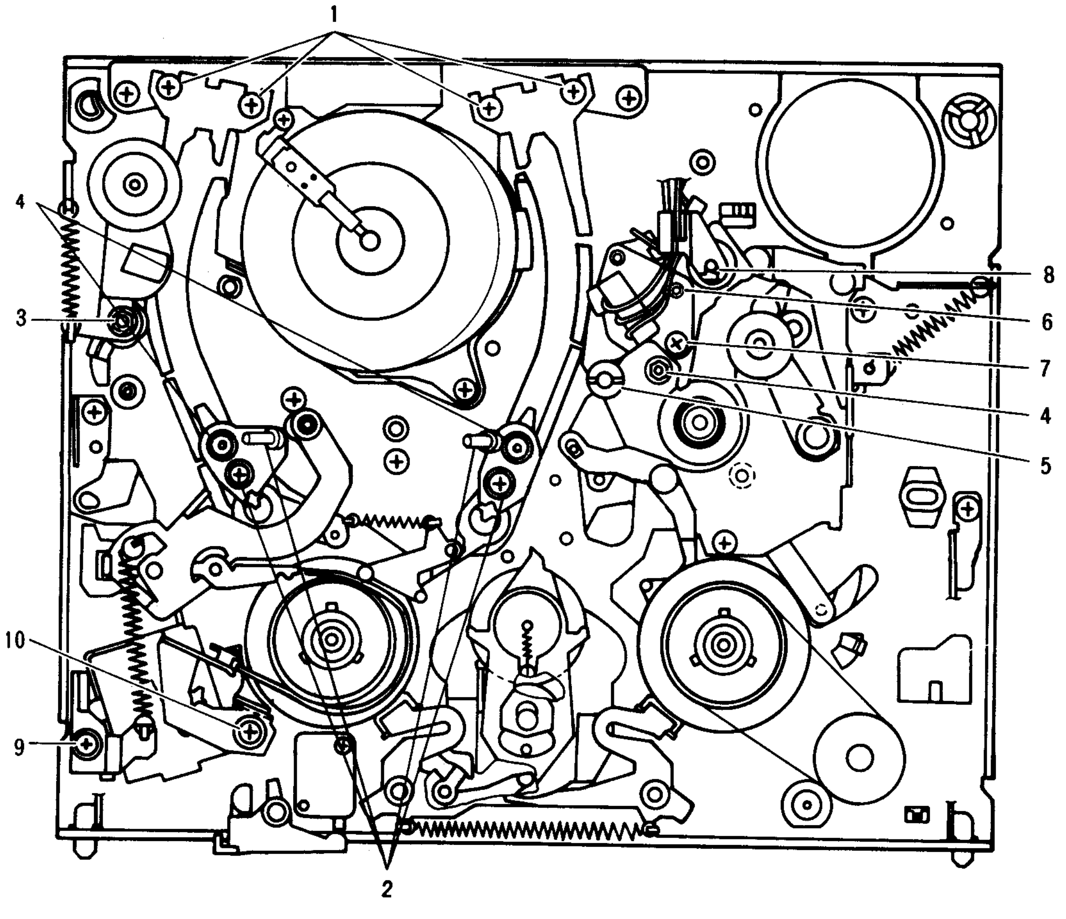


Fig. 19

5. REMOVING PC BOARDS

5-1 End sensor circuit board (Fig. 20)

1. Remove the cassette holder. (Refer to Item 6-1)
2. Pull out the end sensor circuit board upward (1).

5-2 End lamp circuit board (Fig. 20)

1. Open the cassette holder. (Refer to Item 6-1)
2. Remove 1 screw (2).

5-3 Safety tab switch circuit board (Fig. 20)

1. Remove the cassette holder. (Refer to Item 6-1)
2. Remove 1 screw (3).
3. Remove the connector (4).

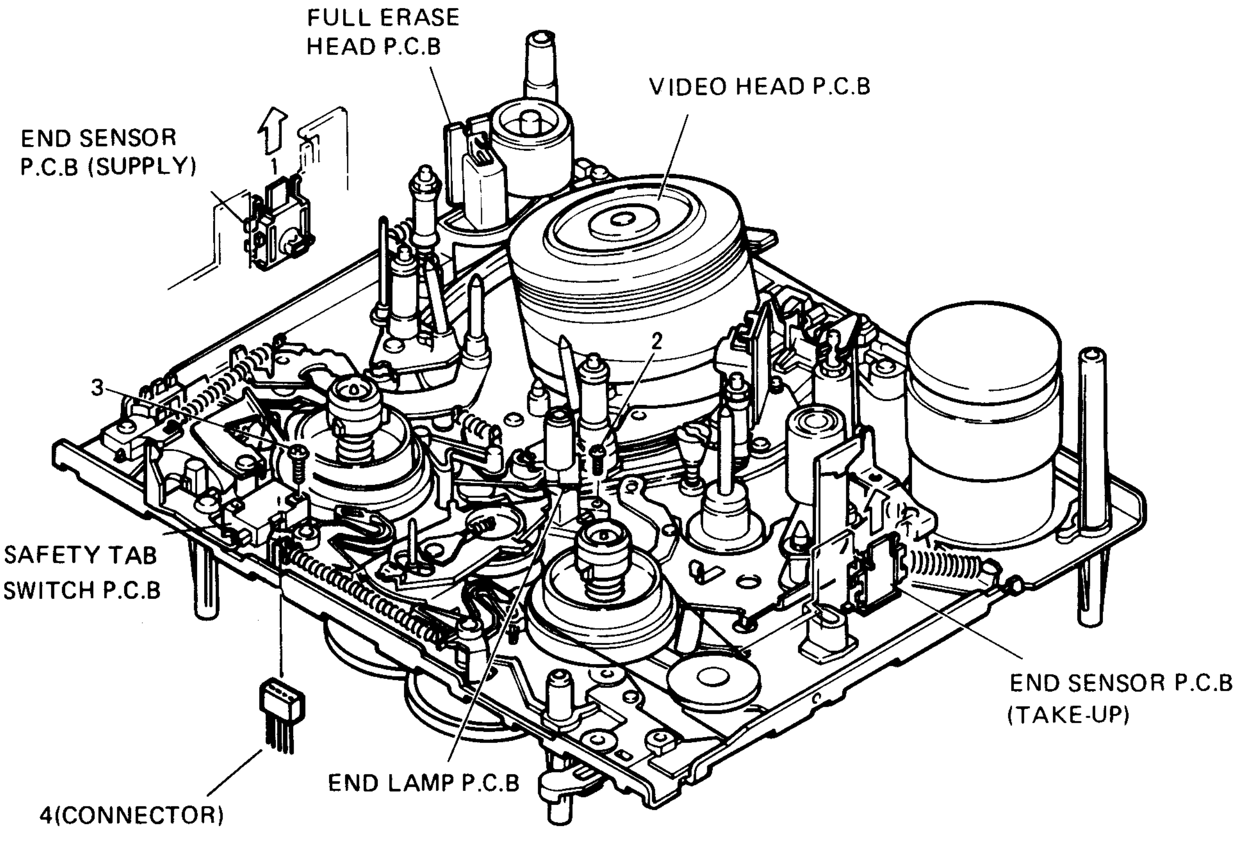

FULL ERASE HEAD P.C.B
VIDEO HEAD P.C.B
END SENSOR P.C.B (SUPPLY)
1
2
3
SAFETY TAB SWITCH P.C.B
END SENSOR P.C.B (TAKE-UP)
END LAMP P.C.B
4(CONNECTOR)

Fig. 20

5-4 Cylinder motor circuit board (Fig. 21)

1. Remove 2 screws (5).

5-5 Reel sensor circuit board (Fig. 21)

1. Remove 1 screw (6).

5-6 Cassette holder switch (Fig. 21)

1. Remove 1 screw (7).
2. Remove the connector (8).

5-7 Mechanism state switch circuit board (Fig. 21)

1. Remove the 1 screw mechanism state switch fixing screw (9).

* Install the mechanism state switch circuit board by the procedure reverse to disassembly. Adjust the mechanism state switch installation position after it is installed. (Refer to Item 8-1)

5-8 Capstan motor circuit board (Fig. 21)

1. Remove the capstan motor circuit board fixing screw (10).

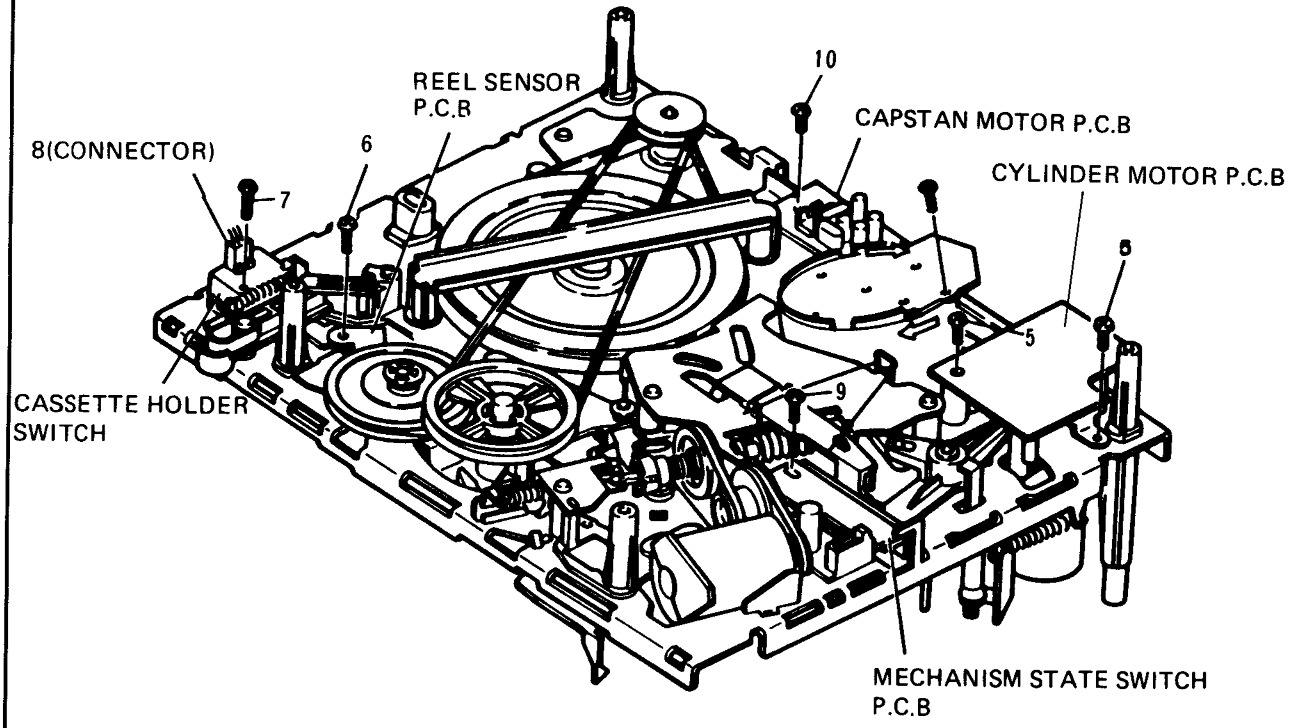

REEL SENSOR
P.C.B
8(CONNECTOR)
6
7
10
CAPSTAN MOTOR P.C.B
CYLINDER MOTOR P.C.B
5
5
9
CASSETTE HOLDER
SWITCH
MECHANISM STATE SWITCH
P.C.B

Fig. 21

6. REMOVING MAIN PARTS

6-1 Cassette holder (Fig. 22)

(1) Remove 2 cassette lid fixing screws (1) to remove the cassette lid.
(2) Press the eject button to open the cassette holder.
(3) Remove the safety tab switch lever (2).
(4) Remove 2 cassette holder fixing screws (3).
(5) Remove the cassette holder. Lift the cylinder side of the cassette holder first at this time.

* Install the cassette holder by the procedure reverse to disassembly. Check the opening/closing operation of the cassette holder, and the operation of the safety tab switch and cassette holder switch after installation is completed.

6-2 Cylinder motor (Figs. 23-1, 23-2, 23-3)

The service parts of the cylinder motor are set as follows.

1 Video head (Upper cylinder)
2 Fixed (lower) cylinder ass'y
3 Transformer terminal
4 Stator circuit board ass'y
5 Rotor magnet ass'y
6 FG circuit board ass'y

The replacement procedure for each part is described in the following.

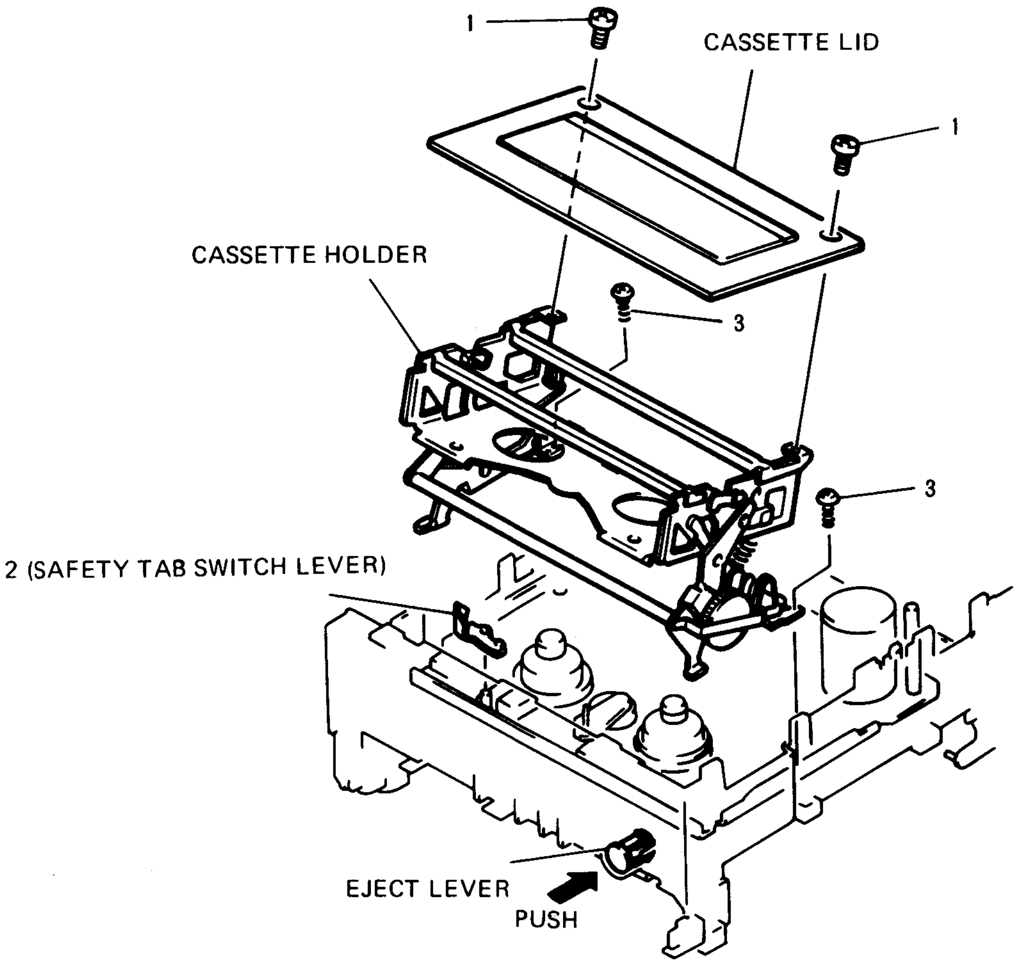


Fig. 22

(1) Video head (Upper cylinder) (Figs. 23-1, 23-2)

1. Remove the brush fixing screw (4).
2. Remove 4 video head leads (5-1) shown in Fig. 23-2.
3. Remove 2 video head fixing screws (6) and pull out the video head.

* Install the video head by the procedure reverse to disassembly. Check the following after installing it.

1) Tighten 2 video head fixing screws (6) shown in Fig. 23-1 alternately. Be careful not to touch the video head tip with a finger or tool.
2) Check that the leads of the rotary transformer shown in Fig. 23-2 and the lead colors marked on the relay PC Board match when soldering the leads after replacing the video head.
3) Clean the tape touching section of the cylinder using alcohol, etc. after installing the video head.
4) Check the output of the FM signal. (Refer to the item "Transport system adjustment" in "Mechanism adjustment").
5) Check the record level of the Y/chroma signals. (Refer to the item "Record current adjustment" in "Circuit adjustment").
6) Check the switching point of the video head. (Refer to the item "switching point (CH1, CH2 PHASE) adjustment" in "Circuit adjustment").
7) Check that the FM signal is max. with the tracking VR set to the center (click) position.
(Refer to the item "Tracking preset adjustment" in "Circuit adjustment").

(2) Fixed cylinder (lower cylinder) (Fig. 23-1)

1. Remove the cylinder motor circuit board. (Refer to Item 5-4)
2. Remove 3 connectors (7).
3. Remove 1 connector (8).
4. Remove heater from the Connector block.
5. Remove 4 lower cylinder fixing screws (9), and then remove the fixed cylinder (lower cylinder) from the top of the chassis.
6. Remove the video head (upper cylinder).

* Install the fixed cylinder (lower cylinder) by the procedure reverse to disassembly. When the video head (upper cylinder) is removed, electrically check and adjust it according to the procedure described previously in the item "Video head installation method".

(3) Transformer terminal

Transformer terminals play the role of the guides which lead the leads of the rotary transformer to the video head (upper cylinder). When the leads are cut and shortened and soldering them to the relay circuit board is not possible, replace the transformer terminals.

1 Remove the video head. (Refer to item (1)).
2 Unsolder the leads (5-2) soldered to the relay circuit board for the fixed head.
3 Pull out the transformer terminals.

* Install the transformer terminals by the procedure reverse to disassembly. Check that the lead colors and color names stamped on the relay circuit board on the rotary transformer match at that time.

(4) Rotary magnet ass'y (Fig. 23-3)

Do not allow the rotary magnet to be attracted by other magnetic or iron materials because it is magnetized with high precision to maintain the precise rotation of the motor. When it is attracted by mistake, there is danger that its magnetization may be changed. Pay special attention in handling the FG signal generating magnet installed to the back of the rotary magnet because the number of poles is 60 and magnetizing force is weak.

1. Remove the stator circuit board fixing screw (10).
2. Turn the stator circuit board clockwise to remove the stator ass'y.
3. Remove the motor case fixing screw (11).
4. Turn the motor case clockwise to remove it.
5. Remove 2 rotor magnet fixing screws (12) shown in Fig. 23-3.
6. Remove the rotor magnet. Be careful not to apply unreasonable force to the cylinder sharft at that time.

* Install the rotor magnet by the procedure reverse to disassembly. Check items shown below at that time.

1) The installation position regulating convex section is provided near the hole in the rotor magnet into which the shaft is inserted, to adjust the installation position. Install the rotor magnet so that this convex section enters the concave section provided in the shaft.
2) Check the switching point of the video head after installing the rotor magnet.
(Refer to the item "Switching point adjustment" in "Circuit adjustment").

(5) FG PC Board ass'y (Fig. 23-1)

1. Remove the stator circuit board.
2. Remove the rotor magnet.
3. Remove the motor case fixing screw (11).
4. Turn the motor case clockwise to remove it.
5. Remove 3 FG PC Board fixing screws (13).

* Install the FG PC Board ass'y by the procedure reverse to disassembly. Refer to the item "Rotor Magnet" for the installation procedure of the rotor magnet and electrical adjustment and checking after installation.

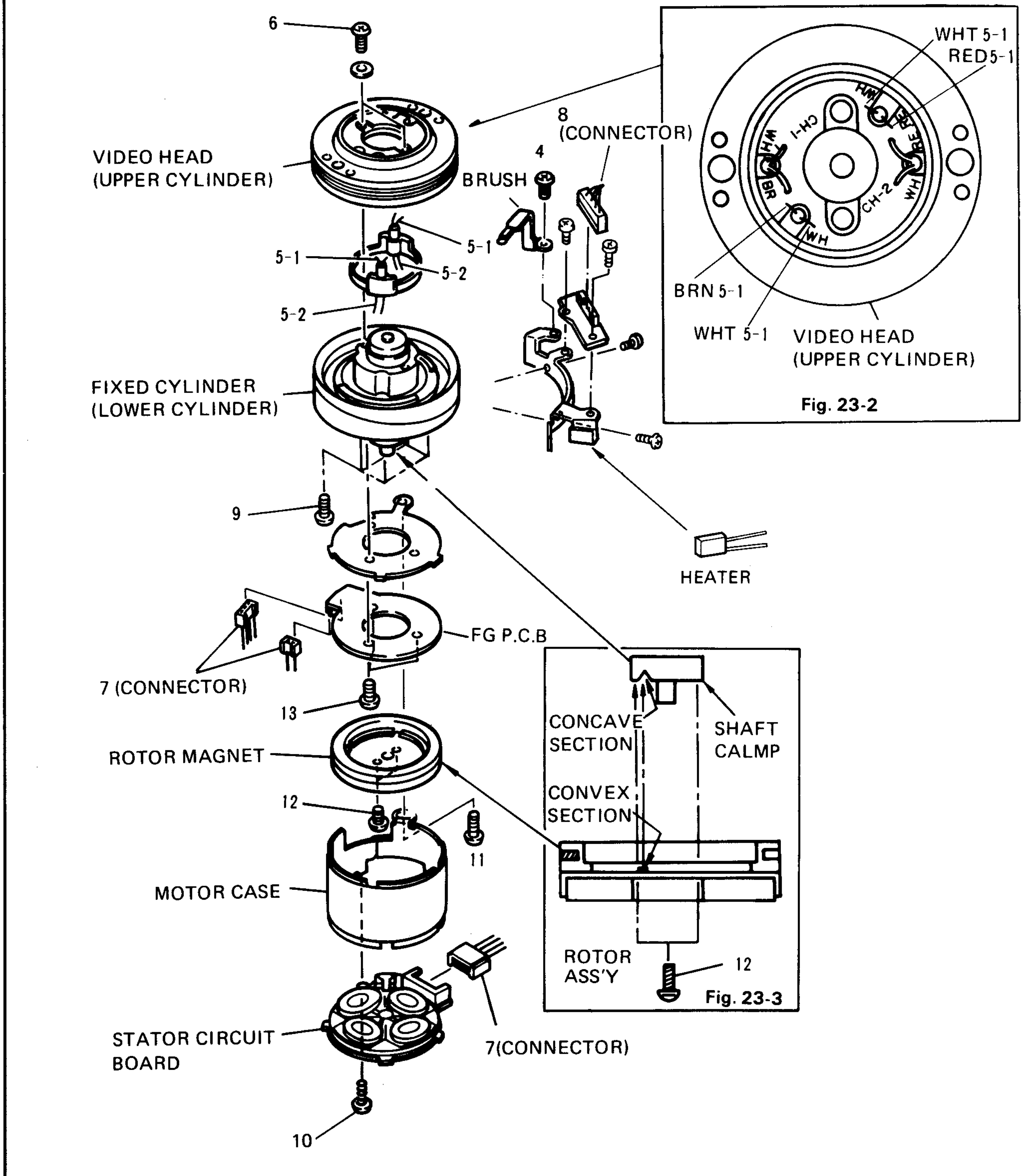

6
VIDEO HEAD (UPPER CYLINDER)
8 (CONNECTOR)
4
BRUSH
5-1
5-2
5-1
5-2
FIXED CYLINDER (LOWER CYLINDER)
9
HEATER
FG P.C.B
7 (CONNECTOR)
13
ROTOR MAGNET
12
11
MOTOR CASE
STATOR CIRCUIT BOARD
7(CONNECTOR)
10
WHT 5-1
RED5-1
CH-1
CH-2
WH
BR
RE
BRN 5-1
WHT 5-1
VIDEO HEAD (UPPER CYLINDER)
CONCAVE SECTION
SHAFT CALMP
CONVEX SECTION
ROTOR ASS'Y
12

Fig. 23-2

Fig. 23-3

Fig. 23-1

6-3 Loading motor ass'y (Fig. 24)

1. Remove the loading belt.
2. Remove the connector (14).
3. Remove the bracket fixing screw (15) and remove the loading motor.

* Install the loading motor by the procedure reverse to disassembly.

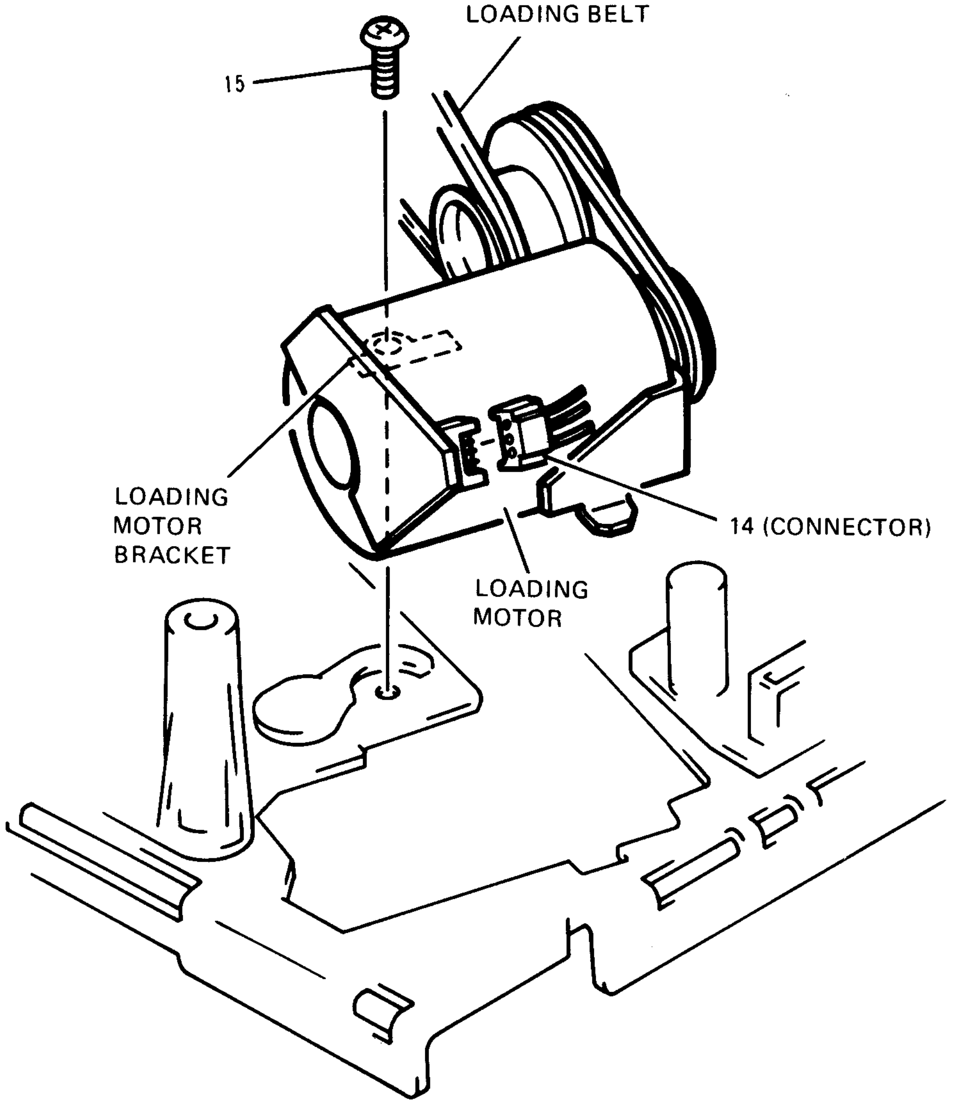

LOADING BELT
15
LOADING MOTOR BRACKET
14 (CONNECTOR)
LOADING MOTOR

Fig. 24

6-4 Capstan motor (Fig. 25)

1. Remove the reel belt.
2. Remove the flywheel belt.
3. Remove 2 capstan motor holder fixing screws (16).
4. Lift the capstan motor ass'y (motor, holder, circuit board) in the direction of the arrow.

* Install the capstan motor by the procedure reverse to disassembly. Check twisting, etc. after installing the reel belt.

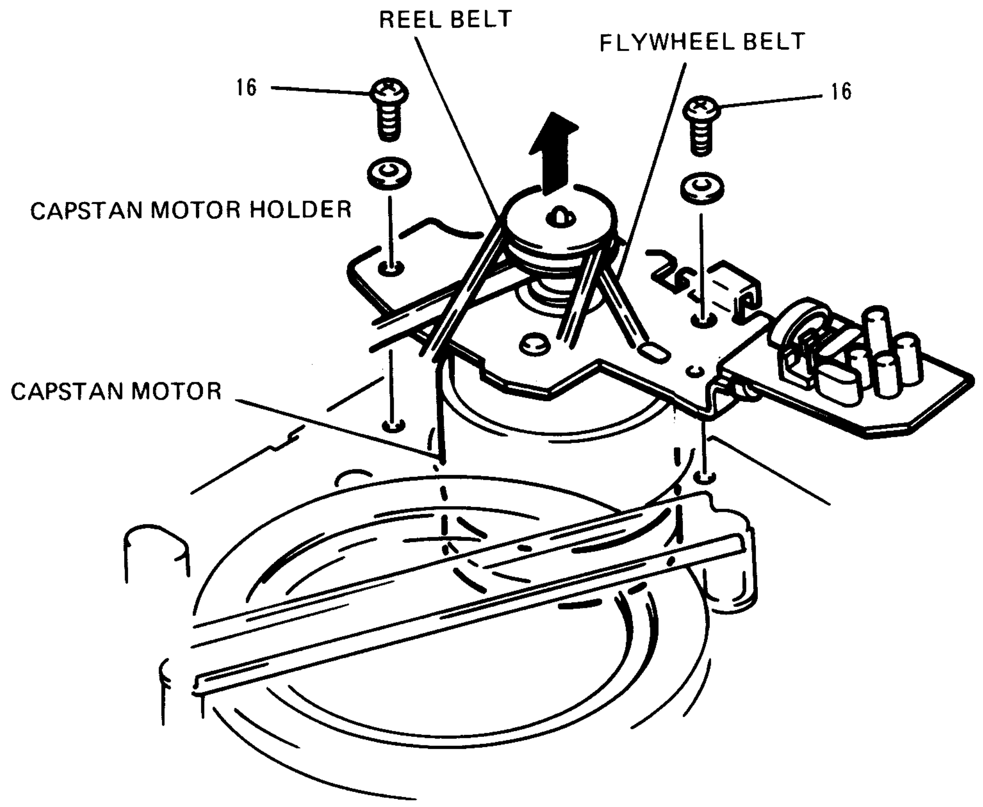

REEL BELT
FLYWHEEL BELT
16
16
CAPSTAN MOTOR HOLDER
CAPSTAN MOTOR

Fig. 25

6-5 Flywheel (Fig. 26)

1. Remove 2 flywheel support plate fixing screws (17) to remove it.
3. Pull out the Flywheel in the direction of the arrow.

* Install the flywheel by the procedure reverse to disassembly.
Insert the washer (18) into the capstan shaft from the top of chassis.

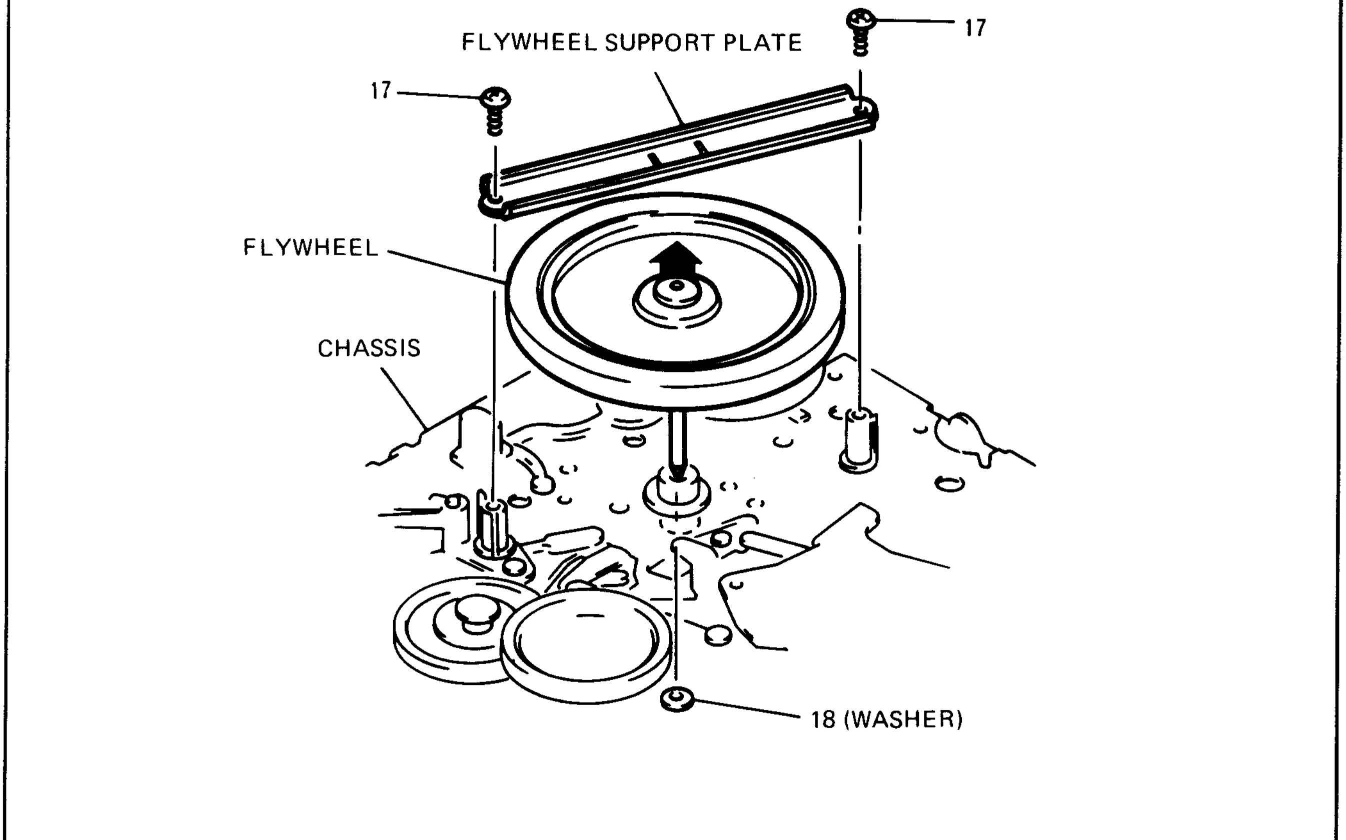

FLYWHEEL SUPPORT PLATE
17
17
FLYWHEEL
CHASSIS
18 (WASHER)

Fig. 26

6-6 FF/REW idler arm ass'y (Fig. 27)

1 Move the spring holder (19) in the direction of the arrow Ⓐ to remove it.

2 Pull out the FF/REW idler ass'y in the direction of the arrow ②.

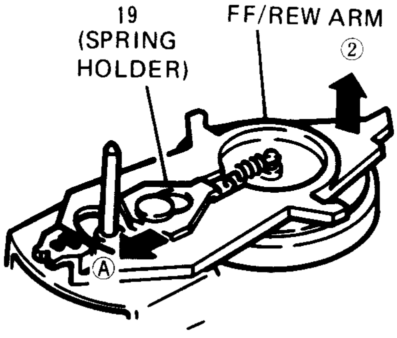

19
(SPRING
HOLDER)
FF/REW ARM
②
Ⓐ

Fig. 27

6-7 Clutch plate ass'y (Fig. 28)

1. Remove the FF/REW idler arm ass'y. (Refer to Item 6-6)
2. Remove 2 clutch plate fixing screws (20).
3. Press the main brake arms (supply side and take-up side) and the brake conversion arm in the direction of arrow Ⓐ to release their engagement and lift the cluth plate ass'y in the direction of arrow Ⓑ to remove it.

* Install the clutch plate ass'y by the procedure reverse to disassembly.

6-8 Brake slider ass'y (Fig. 28)

1. Remove the FF/REW idler arm ass'y. (Refer to Item 6-6)
2. Remove the brake slider ass'y fixing screw (21).
3. Install the brake slider ass'y by the procedure re-

* verse to disassembly.

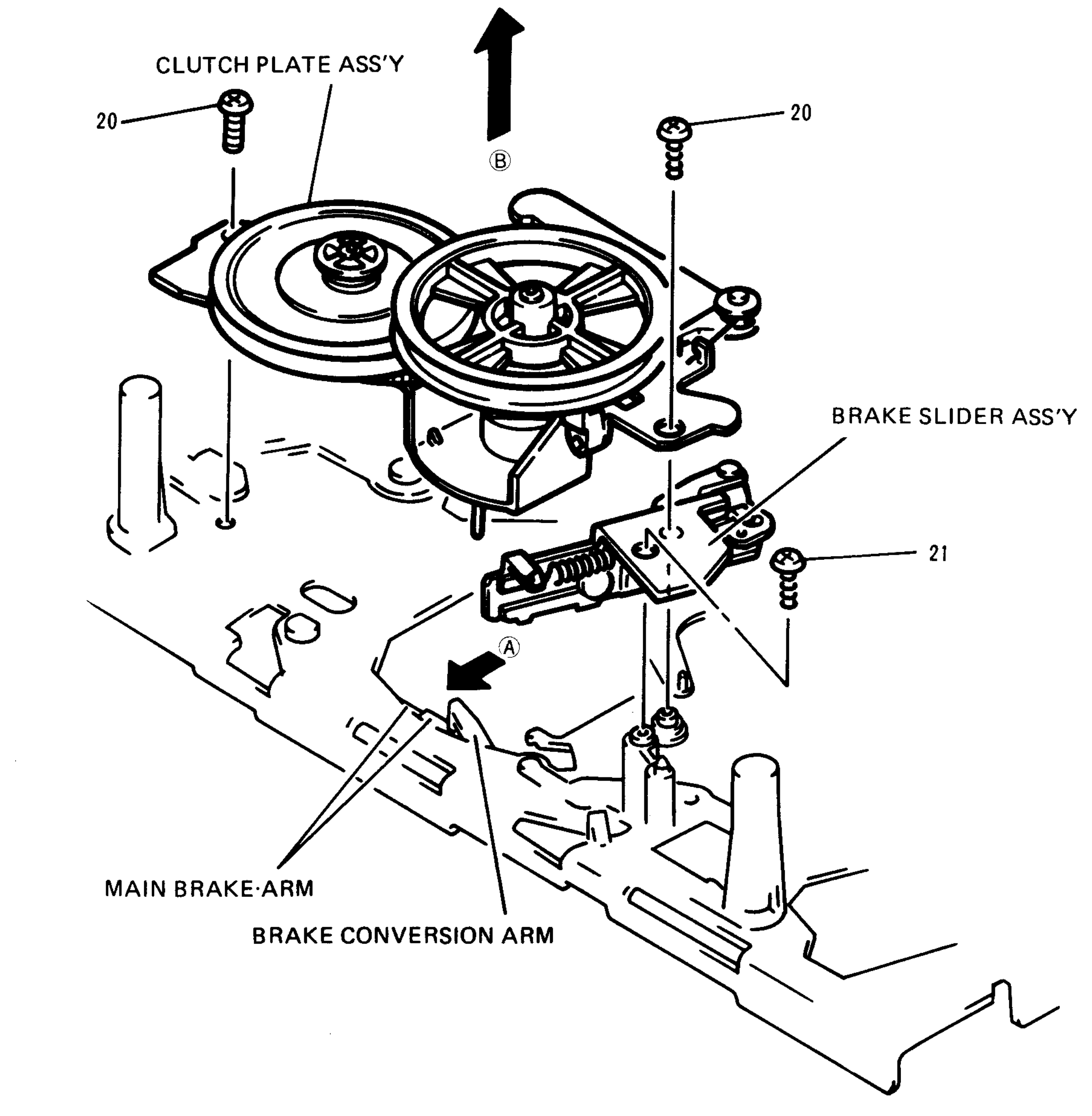

CLUTCH PLATE ASS'Y
20
20
Ⓑ
BRAKE SLIDER ASS'Y
21
Ⓐ
MAIN BRAKE-ARM
BRAKE CONVERSION ARM

Fig. 28

6-9 Loading gear ass'y (Fig. 29, Fig. 30)

1. Turn the loading pulley (shown in Fig. 30) fully in the direction of unloading (direction of the arrow Ⓐ) by band to set the chassis to the unloading mode.
2. Remove the mechanism state switch circuit board. (Refer to Item 5-7)
3. Remove the clutch plate ass'y. (Refer to Item 6-7)
4. Remove the brake slider ass'y. (Refer to Item 6-8)
5. Remove 3 loading gear ass'y fixing screws (22) shown in Fig. 30.
6. Remove 2 guide base clamp plate fixing screws (23) shown in Fig. 29.
7. Remove the T release arm while pressing the stopper shown in Fig. 30.
8. Remove the loading gear ass'y.

* Install the loading gear ass'y by the procedure reverse to disassembly. Install it while paying attention to the items shown below and the linked sections shown in Fig. 30.

(1) The loading gear shaft should be inserted into the hole in the loading link.

(2) The operation arm shaft should be inserted into the hole in the prossure roller shaft.

(3) The shaft of the T release arm 1 should be inserted into the hole in the T release arm 2.

(4) The shaft of drive arm should be inserted into the hole in the coupling piece.

(5) Check and adjust the installation position of the mechanism state switch after installing it. (Refer to Item 8-1).

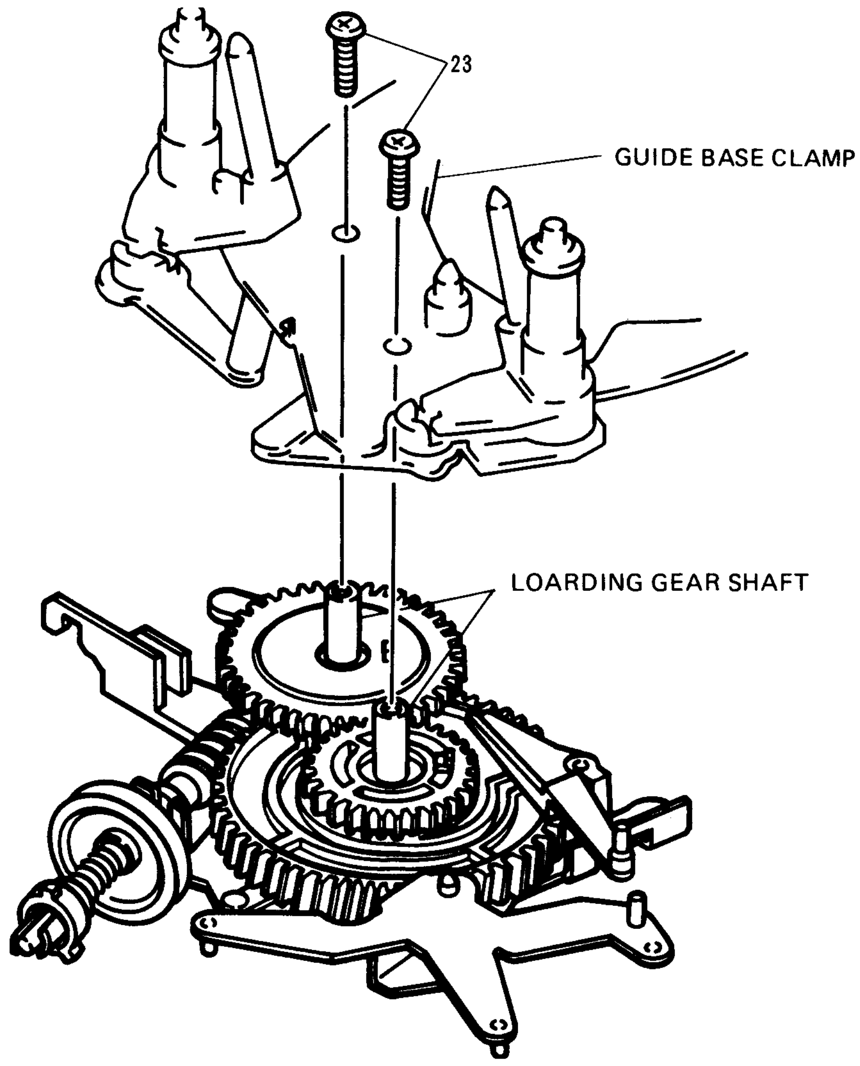


Fig. 29

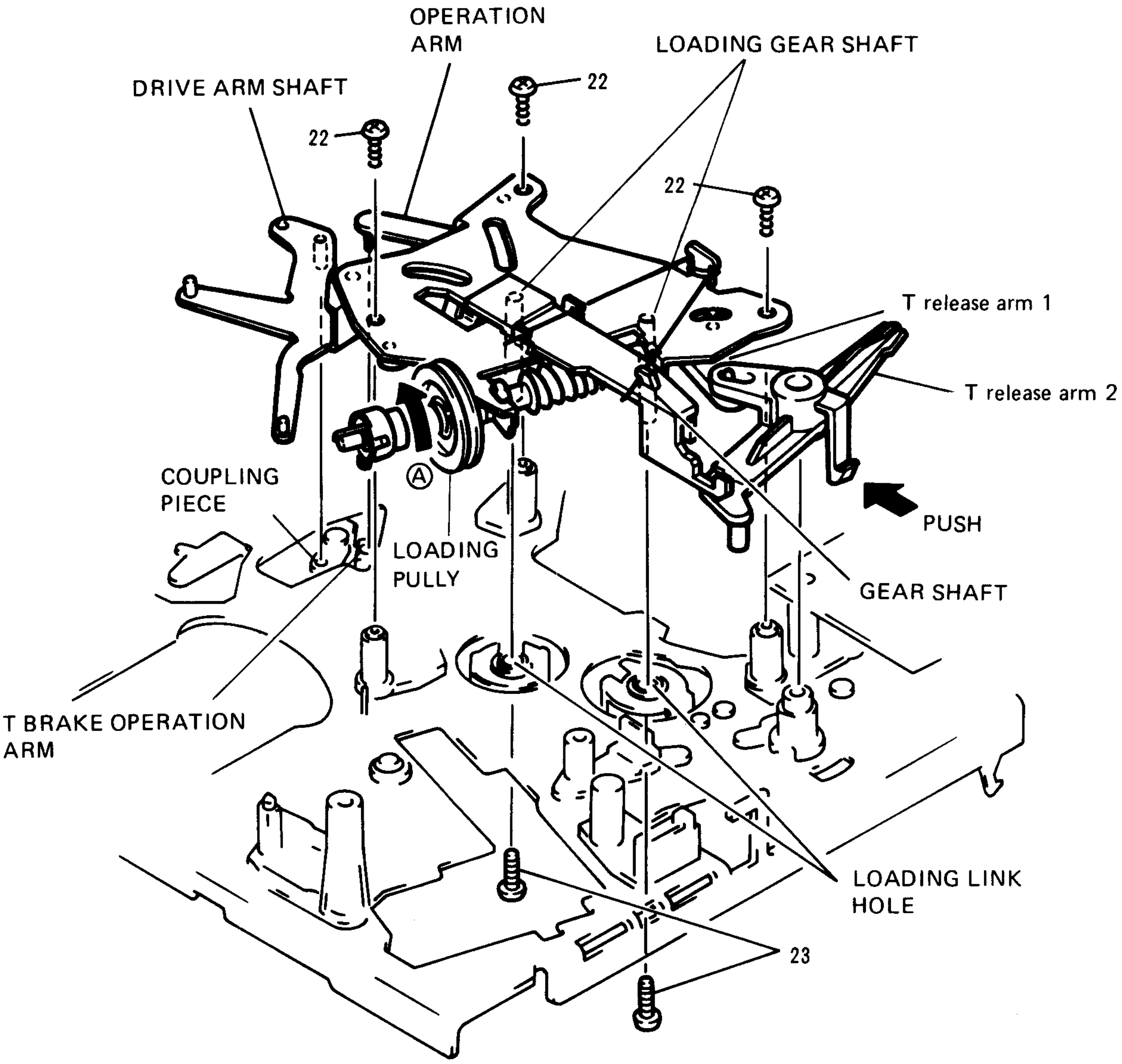

OPERATION ARM
LOADING GEAR SHAFT
DRIVE ARM SHAFT
22
22
22
T release arm 1
T release arm 2
COUPLING PIECE
Ⓐ
LOADING PULLY
PUSH
GEAR SHAFT
T BRAKE OPERATION ARM
LOADING LINK HOLE
23

Fig. 30

6-10 Tension band/tension arm ass'y (Fig. 31)

Tension band

1. Remove the cassette holder. (Refer to Item 6-1)
2. Remove the tension band fixing screw (24).
3. Press the stopper Ⓐ of the tension band felt to release engagement between the tension band and tension felt, and then remove the tension band.

Tension arm

1. Remove the tension band.
2. Remove the spring (25).
3. Pull out the tension arm upward while pressing the stopper Ⓑ.

* Install the tension band/tension arm ass'y by the procedure reverse to disassembly. Adjust the position of the tension pole and tension after installation is completed. (Refer to the item "Transport system adjustment" in "Mechanism adjustment").

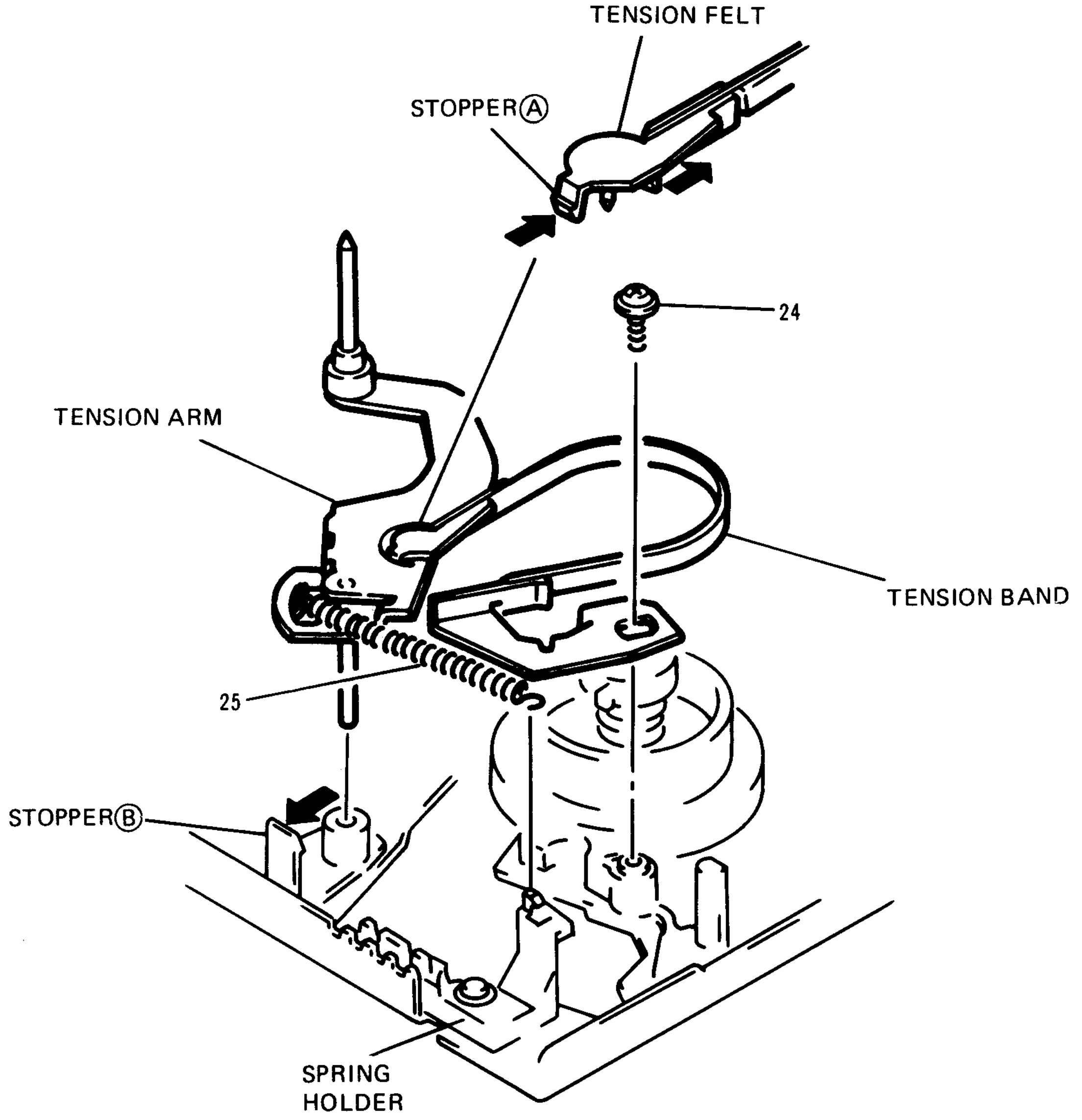

TENSION FELT
STOPPERⒶ
24
TENSION ARM
TENSION BAND
25
STOPPERⒷ
SPRING
HOLDER

Fig. 31

6-11 Take-up reel disk/supply reel disk (Fig. 32).

1. Remove the cassette holder. (Refer to Item 6-1)
2. Remove the washer (26) shown in Fig. 35.

6-12 Pressure roller arm bracket ass'y (Fig. 32)

Pressure roller

1. Remove the pressure roller fixing screw (27).

Pressure roller arm

2. Remove the pressure roller arm fixing washer (28).

Arm bracket ass'y

1. Remove the cassette holder. (Refer to Item 6-1)
2. Remove the take-up reel disk. (Refer to Item 6-11)
3. Remove the pressure roller arm.
4. Remove 2 arm bracket fixing screws (29).

* Install the pressure roller ass'y by the procedure reverse to disassembly, taking care of connections below and shown in Fig.30.

(1) The operation arm shaft should be inserted into the hole in the T brake operation arm.

(2) The drive arm shaft should be inserted into the hole in the coupling piece.

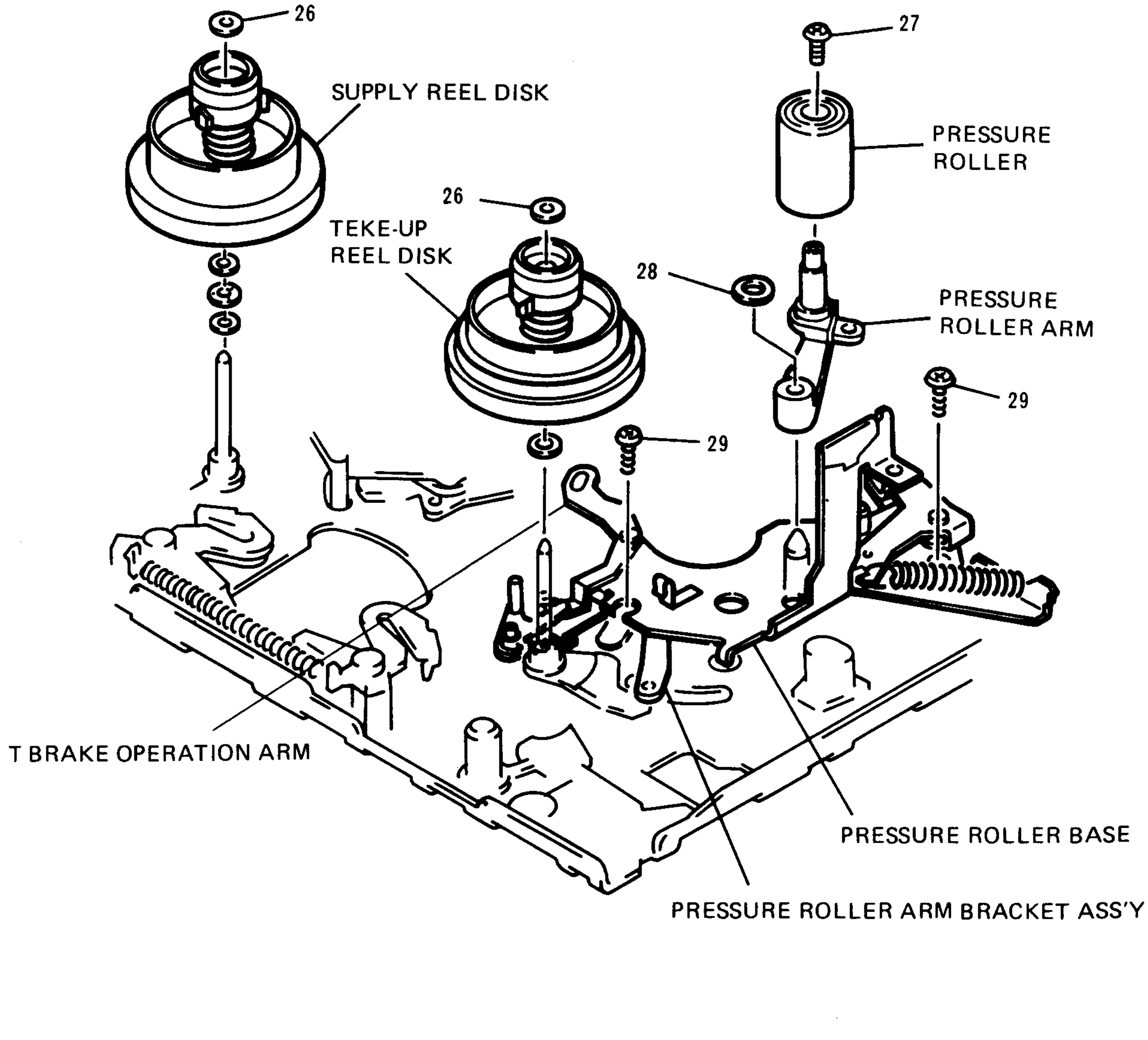

26
SUPPLY REEL DISK
26
TEKE-UP
REEL DISK
28
27
PRESSURE
ROLLER
PRESSURE
ROLLER ARM
29
29
T BRAKE OPERATION ARM
PRESSURE ROLLER BASE
PRESSURE ROLLER ARM BRACKET ASS'Y

Fig. 32

6-13 Guide pole (Fig. 33)

1 Remove the nut (30).
2 Remove the guide pole.
* Adjust the height of the guide pole after installing the guide pole. (Refer to the item 8-2)

6-14 FE head (full erase head) (Fig. 33)

1 Remove the guide pole. (Refer to Item 6-13)
2 Remove the spring (31).
3 Remove the spring (32) from the impedance roller.
4 Pull out the impedance roller ass'y in the direction of the arrow.
5 Remove the FE head fixing screw (33) shown in Fig. 33.
* Install the impedance roller arm ass'y/FE head by the procedure reverse to disassembly, and adjust the height of the tape guide after installation is completed. (Refer to the item 8-2)

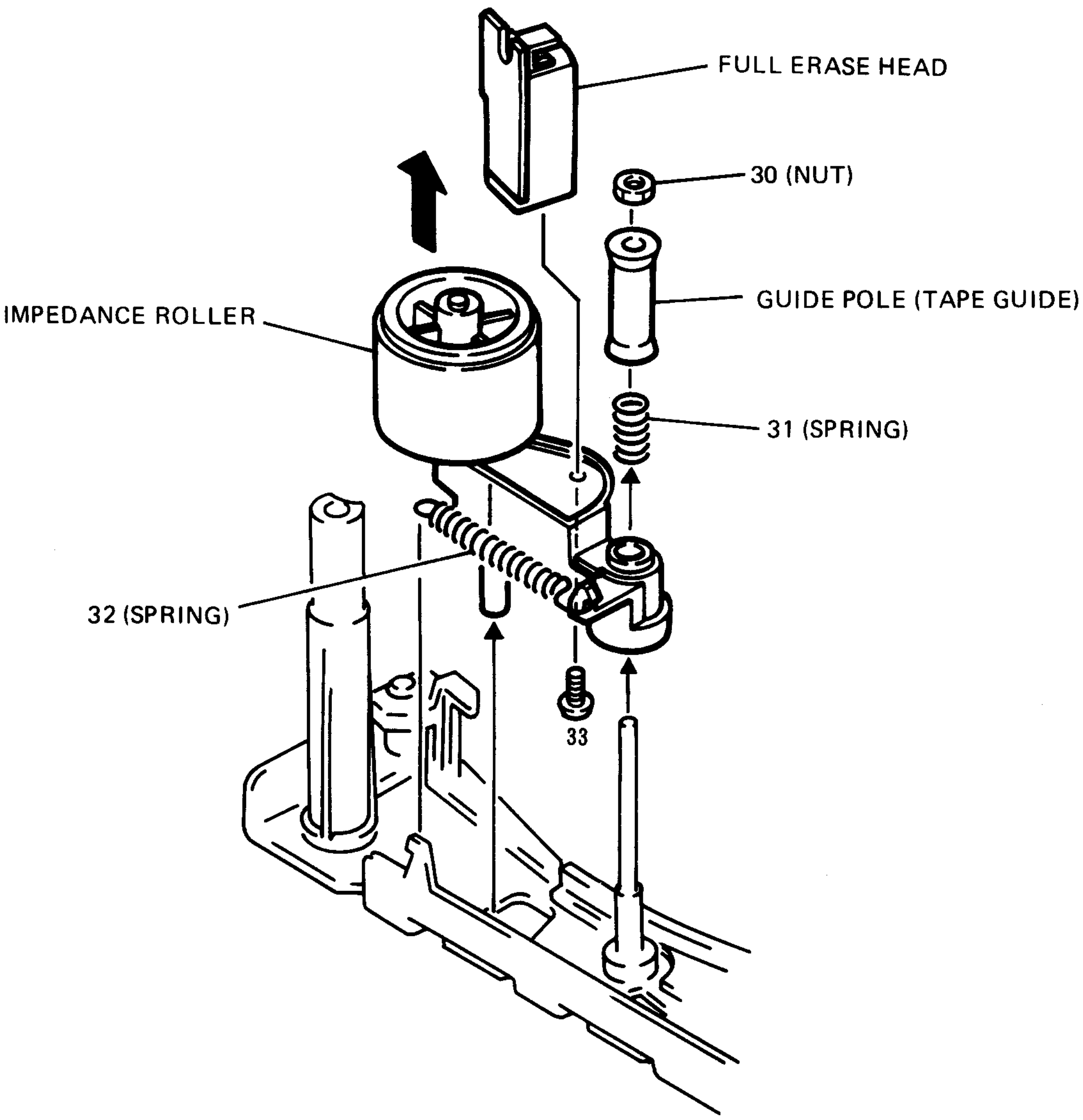

FULL ERASE HEAD
30 (NUT)
GUIDE POLE (TAPE GUIDE)
IMPEDANCE ROLLER
31 (SPRING)
32 (SPRING)
33

Fig. 33

6-15 AC (Audio/control) head (Fig. 34-1, Fig. 34-2)

1. Remove the wiring guide.
2. Remove the head base fixing nut (34) and washer to take out the AC head ass'y.
3. Tighten the head fixing screw (35) to the extent that it comes out approx. 1mm above the top of the AC head base, after replacing the AC head.
4. Tighten the head fixing screws (36, 37) until the head base and the AC head base are set paralle based on the height of the convex section of the head base.
5. Insert the spring (38) between the AC head ass'y and the chassis to hook it to the head base and chassis, to install the AC head to the chassis. Then, fix (38).
6. Perform the "AC head asjustment" described in the "Transport system adjustment. After the adjustment is completed, perform the electric adjustment (playback level and bias level).

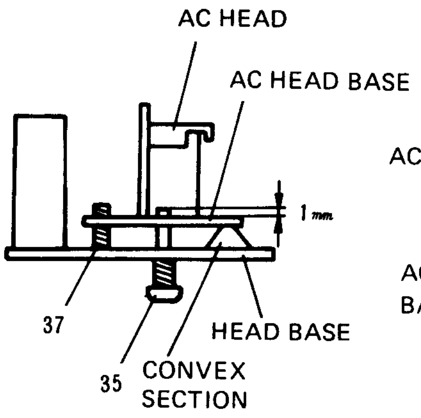

AC HEAD
AC HEAD BASE
1 mm
37
HEAD BASE
35
CONVEX SECTION

Fig. 34-2

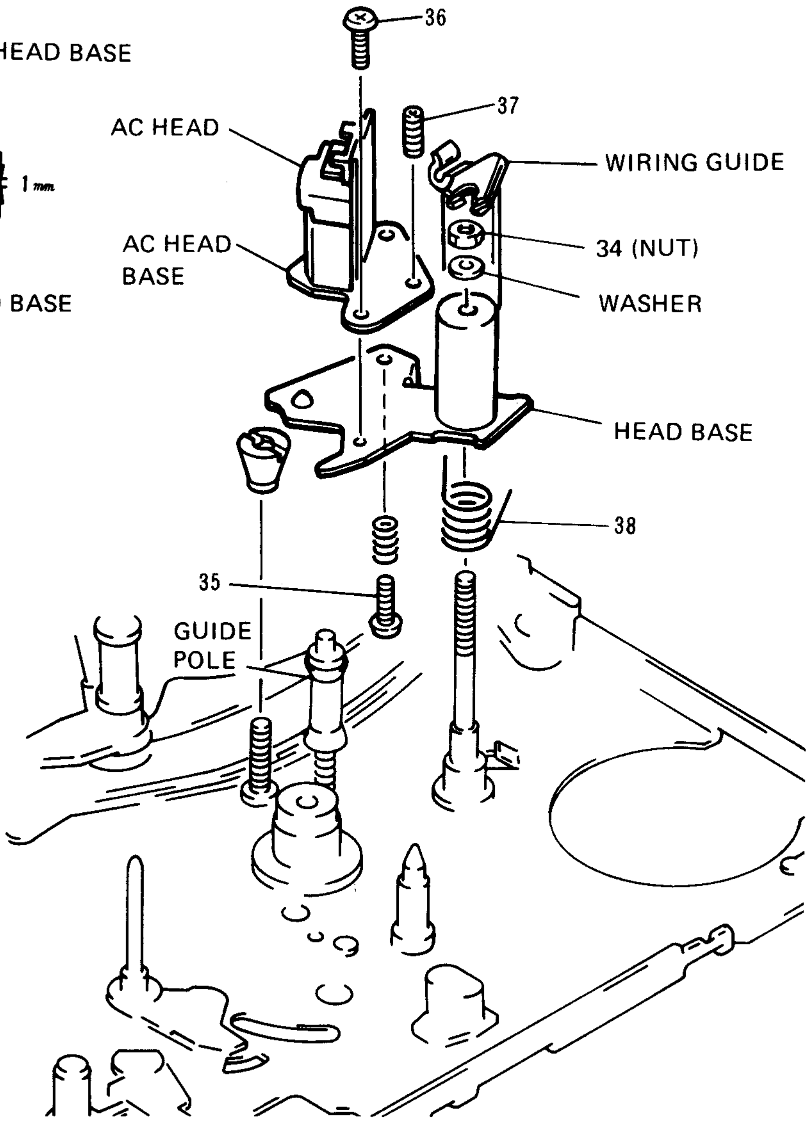

36
37
AC HEAD
WIRING GUIDE
AC HEAD BASE
34 (NUT)
WASHER
HEAD BASE
38
35
GUIDE POLE

Fig. 34-1

7. ELECTRIC CIRCUIT ADJUSTMENT

Test equipment, jigs and tapes required for overall circuit adjustment

1) Color TV set
2) Oscilloscope
3) VTVM
4) Color bar signal generator
5) Frequency counter
6) DC voltmeter
7) Alignment tape
8) Blank tape

Order of adjustment

Perform adjustment in the order shown below.

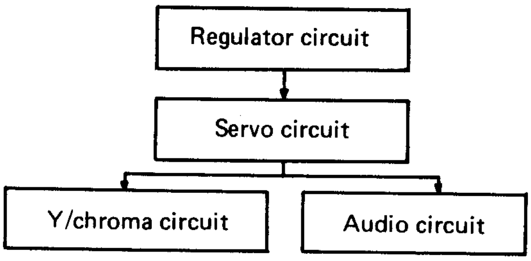
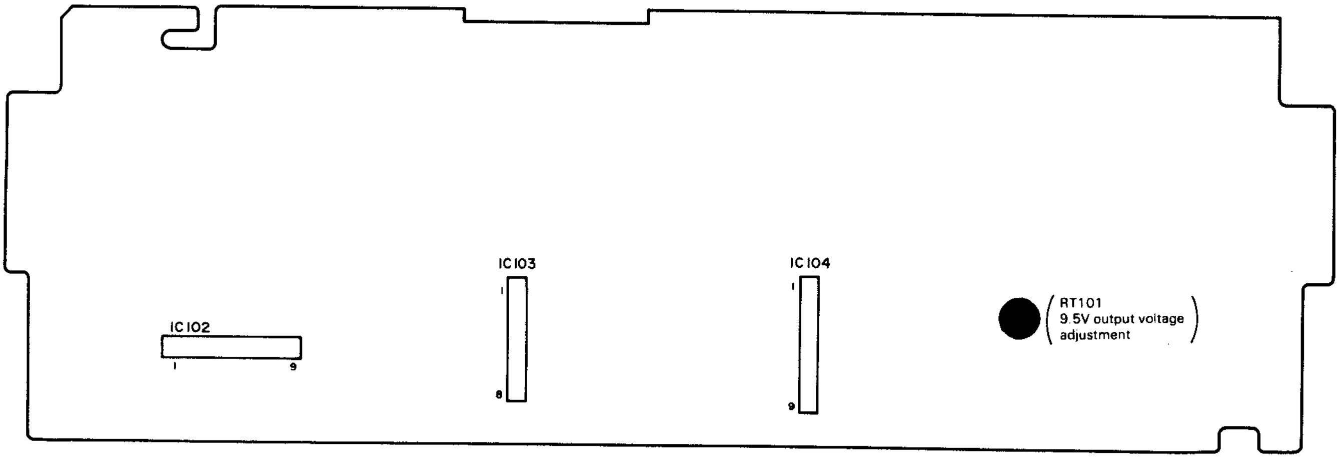

Regulator circuit
Servo circuit
Y/chroma circuit
Audio circuit

Fig. 35

7-1 REGULATOR CIRCUIT

Remove the top panel, set the VTR horizontal and follow the adjustment procedure shown below.


IC102
1
9
IC103
1
8
IC104
1
9
RT101
9.5V output voltage adjustment

Regulator P.C. Board [parts side]

Fig. 36

1 9.5V OUTPUT VOLTAGE ADJUSTMENT

Connection

Connect a DC voltmeter to the test point terminal TP607 on the system control/servo PC Board.

Mode

EE mode

Adjustment point

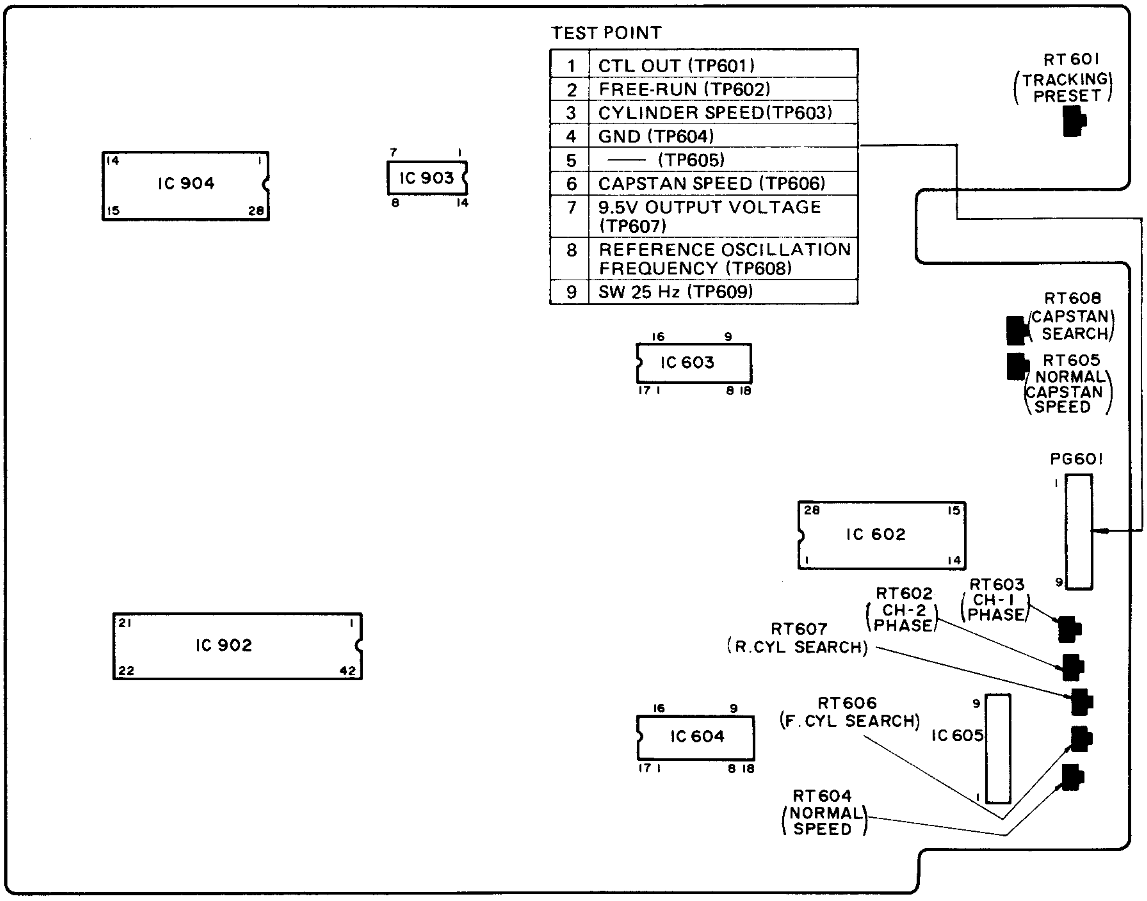
RT101

Adjustment

Adjust RT101 so that the DC voltmeter indicates 9.6V $^{+0.1}_{-0}$ V.

7-2 SERVO CIRCUIT

Remove the top and front panels, set the VTR horizontal and then adjust using the procedure shown below. (The test point terminals and positions to be adjusted are installed on the front panel side.)



TEST POINT

1	CTL OUT (TP601)
2	FREE-RUN (TP602)
3	CYLINDER SPEED(TP603)
4	GND (TP604)
5	—— (TP605)
6	CAPSTAN SPEED (TP606)
7	9.5V OUTPUT VOLTAGE (TP607)
8	REFERENCE OSCILLATION FREQUENCY (TP608)
9	SW 25 Hz (TP609)

IC 904
14
1
15
28
IC 903
7
1
8
14
IC 902
21
1
22
42
IC 603
16
9
17 1
8 18
IC 602
28
15
1
14
IC 604
16
9
17 1
8 18
IC 605
9
1
PG601
1
9
RT601 (TRACKING PRESET)
RT608 (CAPSTAN SEARCH)
RT605 (NORMAL CAPSTAN SPEED)
RT602 (CH-2 PHASE)
RT603 (CH-1 PHASE)
RT607 (R.CYL SEARCH)
RT606 (F.CYL SEARCH)
RT604 (NORMAL SPEED)

System control/Servo P.C. Board (Parts side)

Fig. 37

1 CYLINDER SPEED ADJUSTMENT

This adjustment is to set the cylinder speed to 1500rpm constantly.

Connection

1) Connect the color bar signal generator to the video input jack on the front panel, or receive a TV program.
2) Connect the oscilloscope between the test point terminals PG601-(3) and PG601-(4) (GND).

Mode

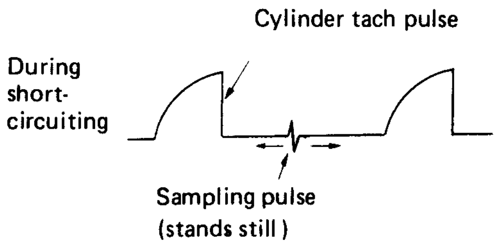
Set the unit to the record mode. Tune the unit correctly when receiving a TV program to record it.

Adjustment point

RT604

Adjustment

1) Short-circuit the test point terminals PG601-(2) and PG601-(7). Adjust RT604 so that the sampling pulse superimposed on the cylinder tach pulse shown in Fig. 38 stands still.



Cylinder tach pulse
During short-circuiting
Sampling pulse (stands still)

Fig. 38

2) Disconnect the short-circuit between PG601-(2) and PG601-(7) (done in item 1). Check that the sampling pulse stands still at the trailing edge of the cylinder tach pulse shown in Fig. 39.

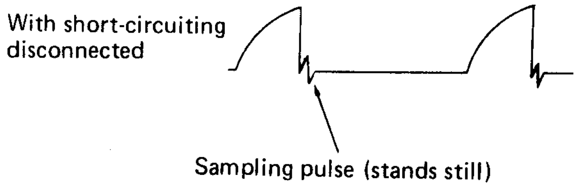

With short-circuiting disconnected
Sampling pulse (stands still)

Fig. 39

2 CAPSTAN SPEED ADJUSTMENT

This adjustment is to set the tape speed constantly to 23.39 mm/sec.

Connection

1) Connect the color bar signal generator to the video input jack on the front panel, or receive a TV program.
2) Connect the oscilloscope between the test point terminals PG601-⑥ and PG601-④ (GND).

Mode

Set the tracking VR to the "click" point and set the unit to the record mode. Tune the unit correctly when receiving a TV program to record it.

Adjustment point

RT605

Adjustment

1) Short-circuit the test point terminals PG601-② and PG601-⑦ Adjust RT605 so that the sampling pulse superimposed on the tracking MM charge curve moves slowly or stands still.

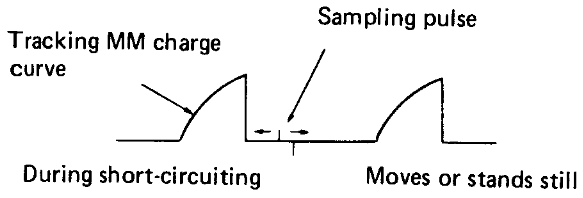

Sampling pulse
Tracking MM charge curve
During short-circuiting
Moves or stands still

Fig. 40

2) Disconnect short-circuit between PG601-② and PG601-⑦ (done in item 1). Check that the tracking pulse stands still around the leading edge of the tracking MM charge curve shown in Fig. 41.

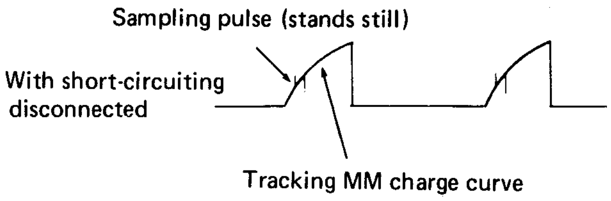

Sampling pulse (stands still)
With short-circuiting disconnected
Tracking MM charge curve

Fig. 41

3 REFERENCE OSCILLATION FREQUENCY ADJUSTMENT

Connection

Connect the frequency counter to the audio output jack on the front panel.

Mode

Short-circuit the test point terminals PG601-⑧ and PG601-⑦ and set only the servo phase control system to the record mode. Then, play back the audio track 3 kHz section of the alignment tape.

Adjustment point

R623, R622

Adjustment

Confirm that the reading of the frequency counter is 3000 Hz ± 15 Hz. Omit R622 when the reading is 3015 Hz or more. On the contrary, omit R623 when it is 2985 Hz or less.

4 CH1/CH2 PHASE ADJUSTMENT

Connection

1) Connect the "EXT TRIG" of the oscilloscope to the test point terminal TP609 (SW25 signal output) and PG601-(4) (GND), and the "INPUT" of the oscilloscope to the video output jack on the front of the VTR.
2) Connect the monitor TV to VTR.

Mode

Play back the alignment tape.

Adjustment point

RT603 (CH1), RT602 (CH2)

Adjustment

1) Set the sync slope select switch of the oscilloscope to "–" when adjusting the phase in CH1, and set to "+" when adjusting the phase in CH2. Then adjust RT603 and RT602 so that the switching points of respective channels are 6.5 H ± 0.5 H before the vertical sync signal in the video signal.

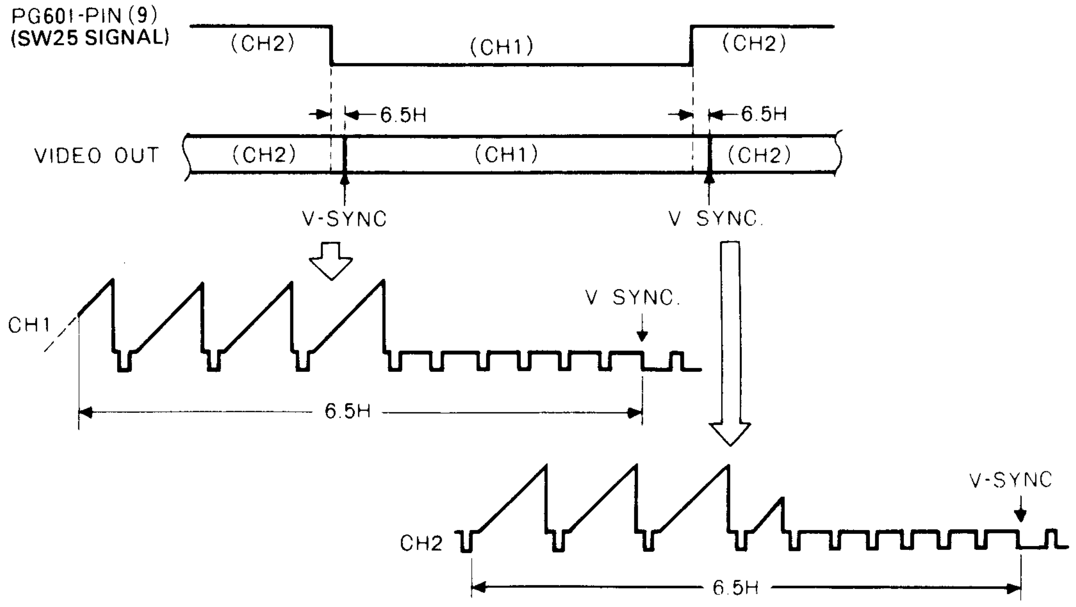


Fig. 42

5 TRACKING PRESET ADJUSTMENT

Connection

1) Connect the color bar signal generator to the video output jack on the front panel, or receive a TV program.
2) Connect the oscilloscope to the test point terminal TP202 on the Y/chroma/audio PC Board.

Mode

Set the tracking VR to the click point and the recording speed select switch to SP, and perform recording for several minutes. Then play back this section for adjustment.

Adjustment point

RT601

Adjustment

Adjust RT601 so that the output of the FM envelope is at max. Next, turn the tracking VR left and right centering on the click point to check that RT601 is adjusted to the max. output point.

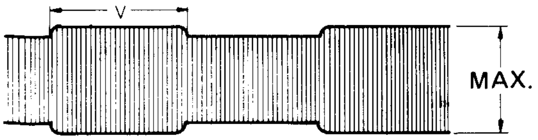


Fig. 43

6 VISUAL SEARCH ADJUSTMENT

1) Connect CH-2 probe of the oscilloscope to PG601-① "Control pulse output" and PG601- ④ "GND".
2) Load the alignment tape or pre-recorded tape and set the VTR to the forward visual search mode.
3) Pre-adjust. RT608 to set the pulse width of control pulse to 10 msec.

Forward visual search cylinder speed:

4) Connect an oscillator to CH-1 jack of the oscilloscope via frequency counter.
5) Remove the connection of CH-2 probe of the oscilloscope and connect it to PG605 "Cylinder FG output".
6) Set the output of the oscillator to 1521.6 Hz.
7) Apply synchronization with CH-1 signal.
8) Adjust RT606 so that the CH-2 waveform does not flow.

Forward visual search capstan speed:

9) Connect a TV set to the VTR.
10) Adjust RT608 to stop the noise band on the TV screen.

Note:

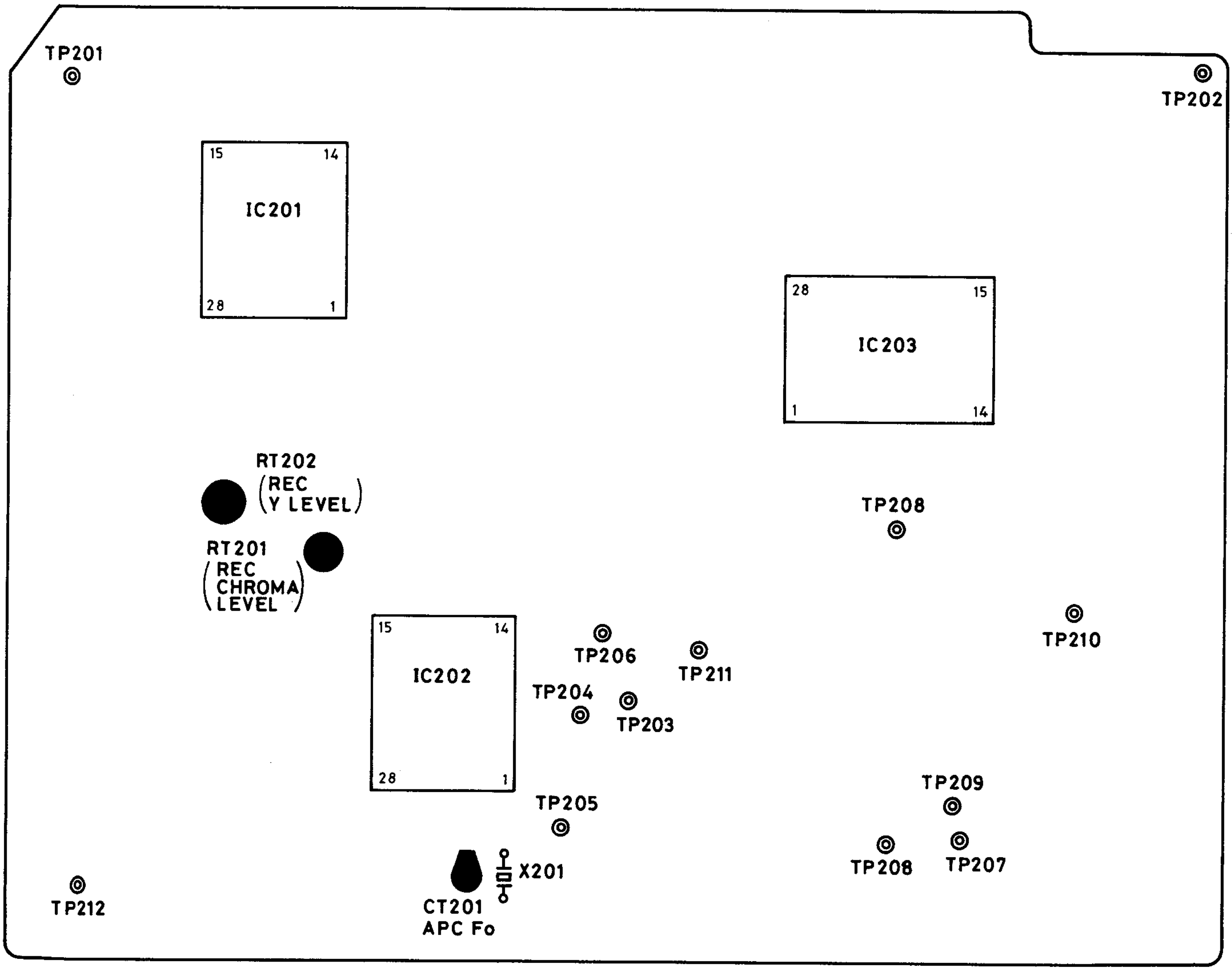
The following speed of the noise band is rated to less than one band every 3 seconds.

Reverse visual search cylinder speed:

11) Set the VTR to the reverse visual search mode.
12) Set the output of the oscillator to 1464 Hz.
13) Apply synchronization with CH-1 signal.
14) Adjust RT607 so that the CH-2 waveform does not flow.

7-3 Y/CHROMA CIRCUIT

Remove the bottom cover, stand the VTR so that the side of the chassif faces does and adjust using the following procedure.


TP201
TP202
15
14
IC201
28
1
28
15
IC203
1
14
RT202
(REC Y LEVEL)
TP208
RT201
(REC CHROMA LEVEL)
15
14
IC202
28
1
TP206
TP211
TP210
TP204
TP203
TP205
TP209
X201
TP208
TP207
TP212
CT201
APC Fo

Y/Chroma P.C. Board (Parts side)

Fig. 44

1. APC FO (4.43 MHz) ADJUSTMENT

Connection

Connect the counter to TP205.

Mode

EE mode.

Adjustment point

CT201 (APC Fo)

Adjustment

Adjust CT201 so that the frequency measured by the counter is 4.435572 MHz ± 20 Hz.

2. RECORD Y/CHROMA LEVEL ADJUSTMENT

The record Y/chroma level is set to the adjusted value shown in Table 1 according to the numerals marked on the upper cylinder shown in Fig. 46. When the cylinder or parts in the Y/chroma circuit are replaced, check the cylinder mark before adjustment.

Record Y level

Cylinder mark	Level
No mark	150 mVp-p

Record chroma level

Cylinder mark	Level
No mark	25 mVp-p
1	30 mVp-p
2	35 mVp-p
3	40 mVp-p
4	40 mVp-p

Table 1

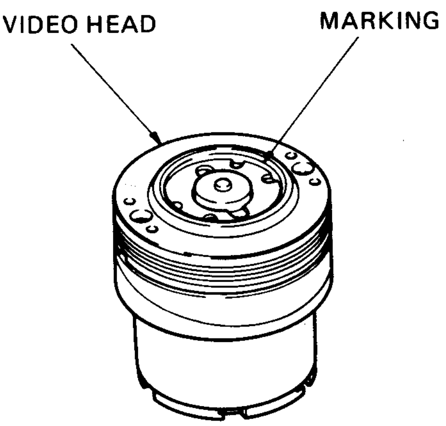


Fig. 45

Connecting test equipment

1) Connect the color bar signal generator to the video input jack on the front panel or receive a TV program.
2) Connect the oscilloscope to the test point terminal TP201.

State of VTR

Set the unit to the record mode.

Position to be adjusted

RT201 (REC CHROMA LEVEL)

RT202 (REC Y LEVEL)

Adjustment procedure

Turn RT202 fully counterclockwise, and then adjuut RT201 so that the reading of the oscilloscope corresponds to the marked value. Next, adjust RT202 so that the reading of the oscilloscope is 150 mVp-p.

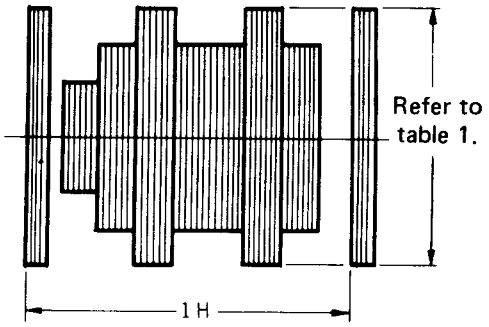


Fig. 46

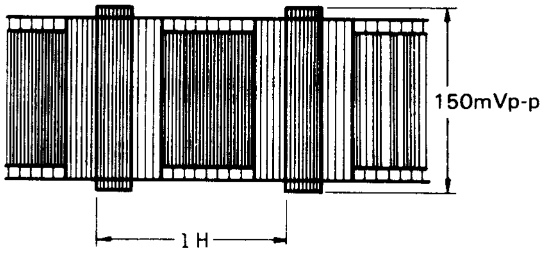
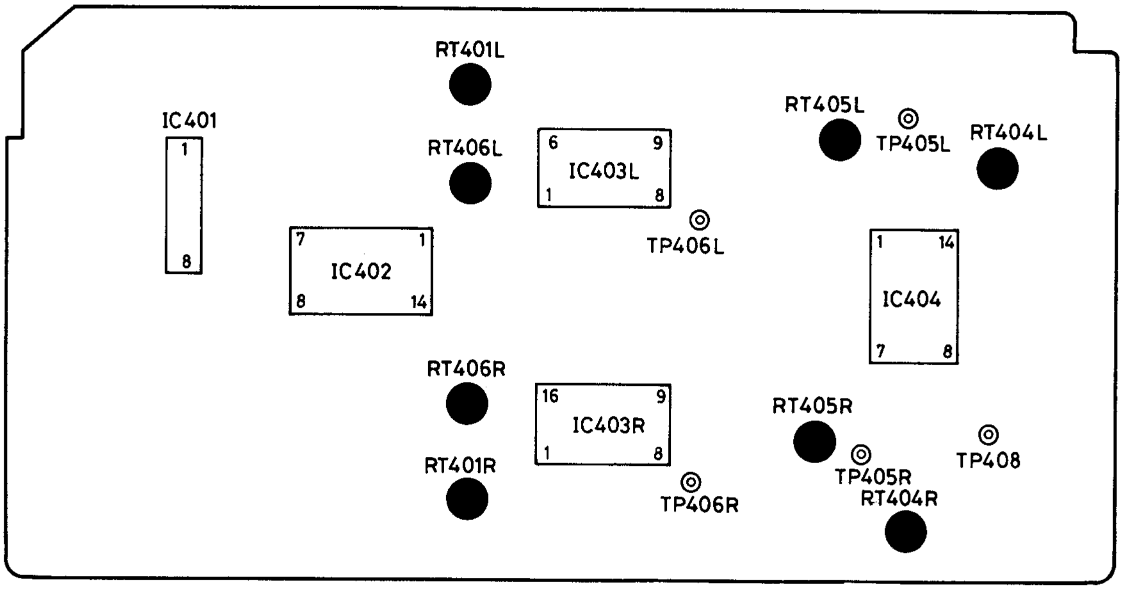


Fig. 47

7-4 AUDIO CIRCUIT


RT401L
IC401
1
8
RT406L
6
9
IC403L
1
8
RT405L
TP405L
RT404L
TP406L
7
1
IC402
8
14
1
14
IC404
7
8
RT406R
16
9
IC403R
1
8
RT405R
TP408
RT401R
TP406R
TP405R
RT404R

Audio P.C. Board (Parts side)

Fig. 48

1 AUDIO PLAYBACK LEVEL ADJUSTMENT

Connection

Connect the VTVM to the audio output jack on the rear panel.

Mode

Play back the 1 kHz audio track section of the alignment tape.

Adjustment point

RT401L, RT401R

Adjustment

Adjust RT401L, RT401R so that the reading of the VTVM is – 5dBm ±1 dB.

2. AUDIO BIAS LEVEL ADJUSTMENT

Connection

Connect the VTVM between the resistor and GND on the audio control head board shown in Fig. 49 to adjust L CH. Apply the same to adjust the R CH.

Mode

Set to the non-signal recording mode.

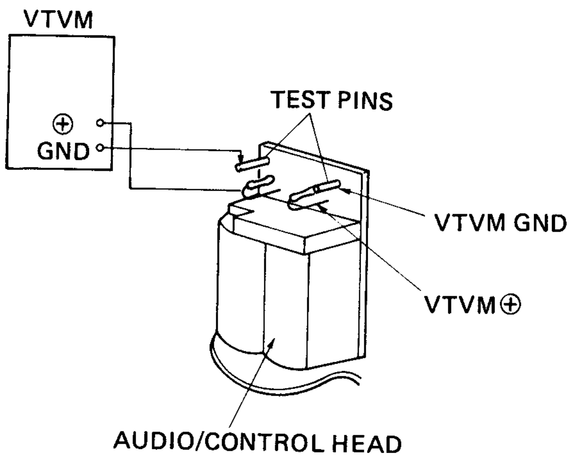

VTVM
⊕
GND
TEST PINS
VTVM GND
VTVM⊕
AUDIO/CONTROL HEAD

Fig. 49

Adjustment point

RT404L, RT404R

Adjustment

Adjust RT404L and RT404R so the VTVM reads 4.2 mV for both the R and L channels. left and right channels.

3 LINE INPUT ADJUSTMENT

Connection

1) Connect the audio signal generator (400 Hz – 8dBm) to the audio input jack.
2) Connect the VTVM to the audio output jack.

Mode

EE mode

Adjustment point

RT406L, RT406R

Adjustment

Adjust RT406L, RT406R so that the reading of the VTVM is – 8±0.2 dBm.

4 RECORD LEVEL ADJUSTMENT

Connection

1) Connect the audio signal generator (400 Hz, – 8dBm) to the audio input jack.
2) Connect the VTVM to TP405L, TP405R.

Mode

Load a blank tape and set the VTR to the record mode.

Adjustment point

RT405L, RT405R

Adjustment

Adjust RT405L, RT405R so that the reading of the VTVM is 1 dBm. Then confirm that it is – 8 dBm ±0.5 dB at the audio output jack when the recorded section is played back.

7-5 MULTIPLEX DEMODULATION CIRCUIT (EXCEPT FOR UK MODEL)

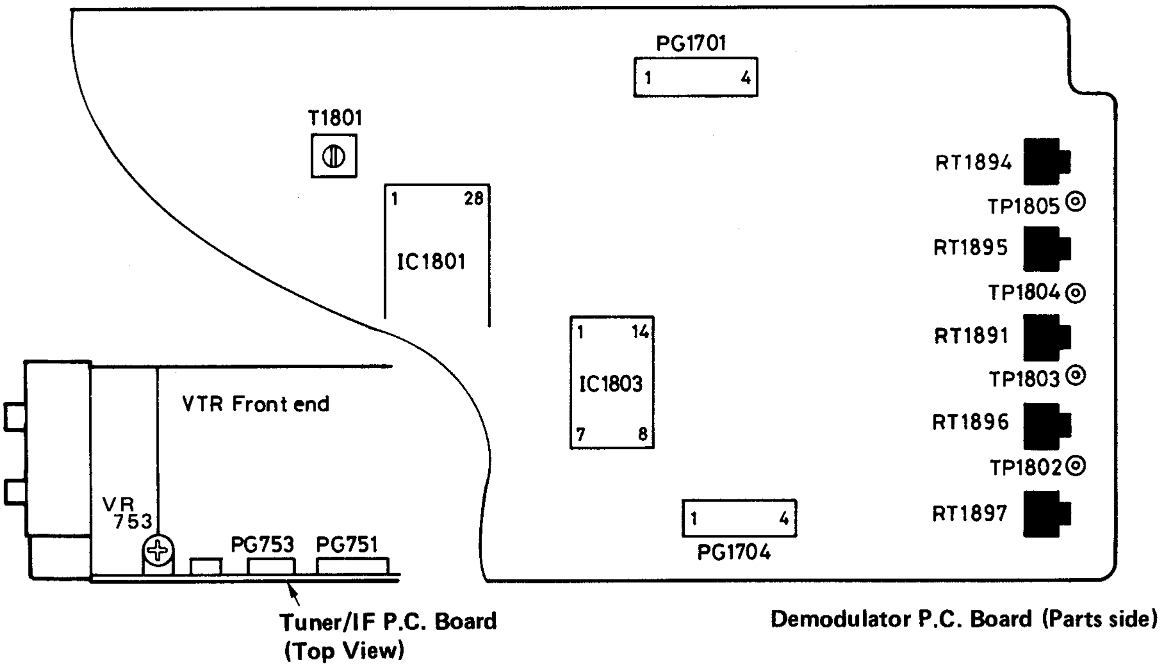

PG1701
1
4
T1801
1
28
IC1801
1
14
IC1803
7
8
VTR Front end
VR
753
PG753
PG751
1
4
PG1704
RT1894
TP1805
RT1895
TP1804
RT1891
TP1803
RT1896
TP1802
RT1897
Tuner/IF P.C. Board
(Top View)
Demodulator P.C. Board (Parts side)

Fig. 50

Note:

1. Set all the semi-variable resistors on the demodulator board to around the center of their variable ranges.
2. Set the audio channel select switch to "CH1 + CH2".

1. 55 kHz (fo) ADJUSTMENT

Connection

Connect the oscilloscope to the test point terminal TP1803.

Mode

Receive a stereo broadcast.

Adjustment point

RT1891, T1801

Adjustment

1) Adjust RT1891 so that the waveform is 0.1 Vp-p.
2) Adjust T1801 so that the waveform is maximized.
3) Connect the VTVM to TP1803, re-adjust RT1891 so that the output is −18 ± 1 dBm.

2. Vco fo ADJUSTMENT

Connection

Connect the counter to the test point terminal TP1804 (TP1805).

Mode

Receive a monaural broadcast.

Adjustment point

RT1895 (RT1894)

Adjustment

Adjust RT1895 (RT1894) so that the frequency of the wave is 235 ± 2 Hz (548 ± 2 Hz).

3. L CH SEPARATION ADJUSTMENT

Connection

Connect the oscilloscope to the Audio output jack (L ch) on the rear panel.

Mode

Receive a stereo broadcast.

Adjustment point

VR753 (Tuner/IF P.C. Board)

Adjustment

Adjust VR753 so that the audio signal of R CH is minimum.

4. L CH/R CH OUTPUT ADJUSTMENT

Connection

Connect the VTVM to the Audio output jack (L ch (R ch)) on the rear panel.

Mode

Receive a monaural broadcast.

Adjustment point

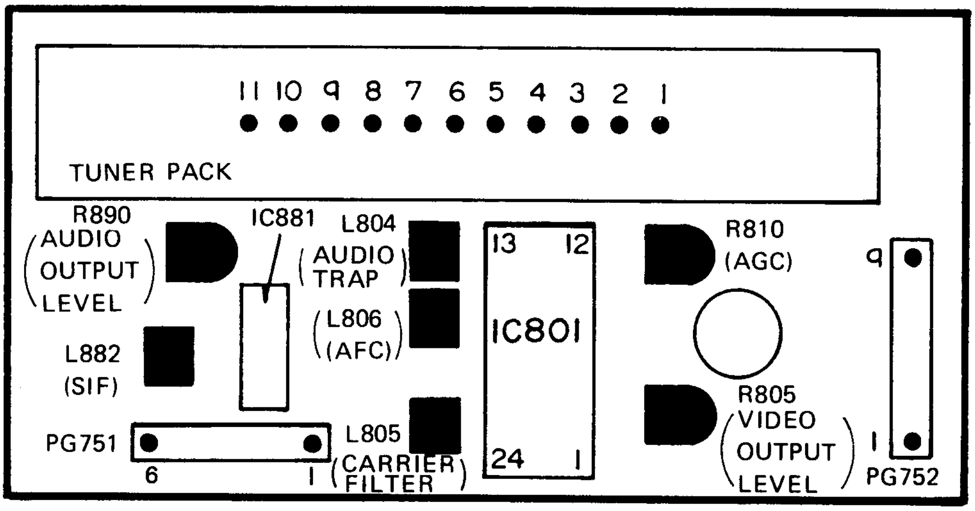
RT1896 (L ch), RT1897 (R ch)

Adjustment

Adjust RT1896 (L CH) and RT1897 (R CH) so that they are both −15 ± 0.5 dBm.

7-6 TUNER/IF CIRCUIT [For UK model]

Note: In the unit, the tuner pack and IF is a single unit. It has been adjusted carefully, but if it gets out of adjustment, adjust it by the following procedure.
When it is desired to adjust the tuner pack and IF remove this block from the unit.


11 10 9 8 7 6 5 4 3 2 1
TUNER PACK
R890
AUDIO OUTPUT LEVEL
IC881
L804
AUDIO TRAP
13
12
IC801
24
1
R810
(AGC)
9
L882
(SIF)
L806
(AFC)
R805
VIDEO OUTPUT LEVEL
PG751
6
1
L805
CARRIER FILTER
1
PG752

IF P.C. Board (Parts side)

Fig. 51

1. CARRIER FILTER ADJUSTMENT

Connection

1) Connect the sweep marker generator (Output: −30 ± 10 dBm, marker frequency: 39.5 MHz) to IC801 pin ⑥ of the IF pack via the coupling circuit shown in Fig. 52.
2) Supply +8.9V DC to IC801 pin ⑫, +12V DC to PG751-PIN 5.
3) Connect the oscilloscope to PG751-pin ② and observe the IF signal waveform.

Mode

EE mode.

Adjustment Point

L805

Adjustment

Adjust the core of L805 so that the 39.5 MHz ± 50 kHz component of the waveform of video output is maximum. (See Fig. 53)

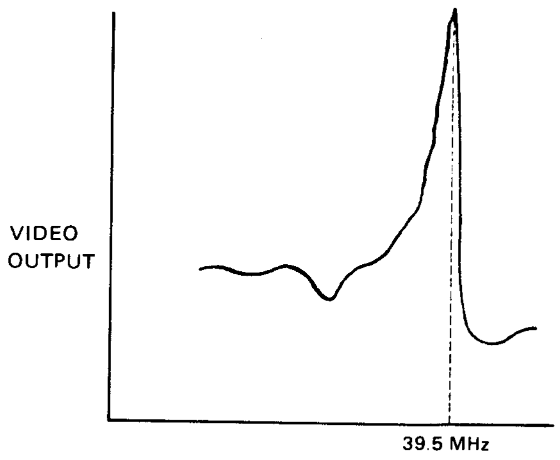
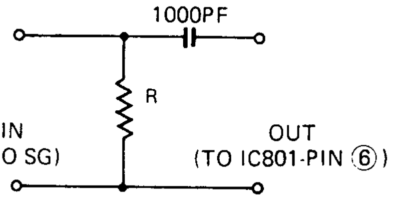


Fig. 53


1000PF
R
IN
(TO SG)
OUT
(TO IC801-PIN ⑥)

R:
SELECT A VALUE TO MATCH OUTPUT IMPEDANCE OF SIGNAL GENERATOR.

Fig. 52

2. AUDIO TRAP ADJUSTMENT

Connection

1) Connect the sweep marker generator to IC801 pin ⑥ of the IF pack via the coupling circuit shown in Fig. 52
(−20 ±10 dBm, marker frequency: 33.50 MHz 41.5 MHz)
2) Connect the oscilloscope to PG751-pin 2 , +12V DC to PG751-pin ⑤.
3) Supply +8.9V DC to IC801 pin ⑫.

Mode

EE mode

Adjustment point

L804

Adjustment

Adjust the core of L804 so that the level of audio trap frequency (33.5 MHz) is minimum. (See Fig. 54).

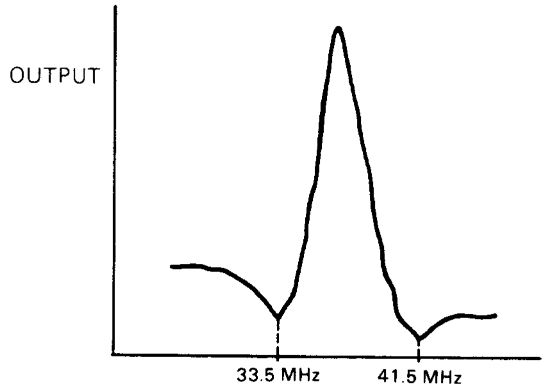


Fig. 54

3. AFC ADJUSTMENT

Connection

1) Connect the sweep marker generator (Output: −4 ± 5 dBm, marker frequency: 39.5 MHz) to tuner pack-pin⑨via the coupling circuit shown in Fig. 52.
2) Supply +9.1V DC to IC801 pin ⑫ +12V DC to PG751-pin ⑤.
3) Connect the oscilloscope to PG572-pin ① via the coupling circuit shown in Fig. 55.

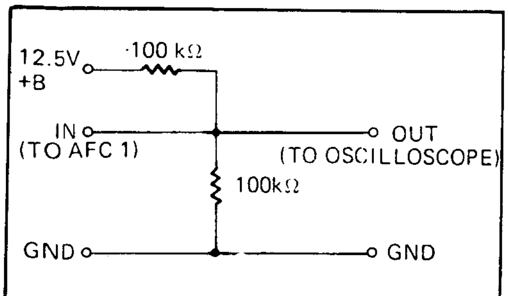


Fig. 55

Mode

EE mode

Adjustment Point

L806

Adjustment

Adjust L806 so that the output voltage at 39.5 MHz is 6.5V ± 1.0 V. (See Fig. 56)

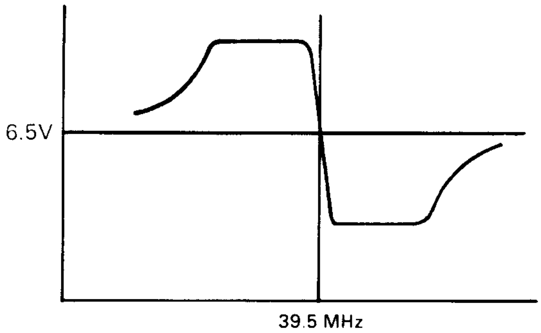


Fig. 56

4. SIF ADJUSTMENT

Connection

1) Connect the AM signal generator (33.5 MHz ± 5 kHz, −60 ± 5 dBm, Audio signal (400 Hz): AM 30% modulation) to IC801 pin ② of IF pack via the coupling circuit shown in Fig. 52
2) Connect the oscilloscope to PG751-pin ④ and observe the audio IF signal waveform.
3) Supply +8.9V DC to IC801 pin 12 + 12V DC to PG751-pin ⑤.

Mode

EE mode

Adjustment Point

L882

Adjustment

Adjust L882 so that the output is minimum.

5. VIDEO OUTPUT ADJUSTMENT

Connection

Connect the color bar RF generator to the ANTENNA INPUT terminal of VTR.
(input −41 ± 10 dBm, modulation degree 87.5%)
Connect the oscilloscope to PG751-pin ②.

Mode

1) EE mode
2) Tune the VTR for best reception by observing the picture on the screen.
3) Close the channel preset cover. (AFC switch: ON)

Adjustment Point

R805

Adjustment

Adjust R805 so that the output level is 1 Vp-p. (See Fig. 57)

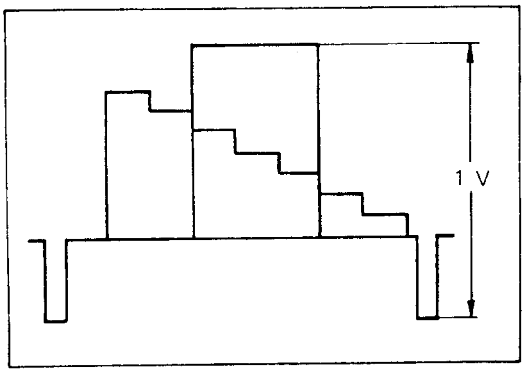


Fig. 57

6. AUDIO OUTPUT LEVEL ADJUSTMENT

Connection

1) Connect the TV signal generator to the AERIAL INPUT terminal of VTR
   (input: −41 ± 10 dBm, 30% modulation with sinewave audio signal at 400 Hz)
2) Connect the oscilloscope to PG751-pin④.

Mode

1) EE mode
2) Tune the VTR for best reception by observing the picture on the screen.
3) Close the channel presset cover (AFC switch: ON)

Adjustment point

R890

Adjustment

Adjust R890 so that the output level is equal −15 ± 1.5 dBm.

7. AGC ADJUSTMENT

Connection

Connect the color bar-RF-generator to the ANTENNA INPUT terminal of VTR.
(input: For UK model CH68, −49 dBm, −44 dBm, modulation degree 87.5%)

Mode

1) EE mode
2) Tune the VTR for best reception by observing the picture on the screen.
3) Close the channel preset cover. (AFC switch: ON)

Adjustment Point

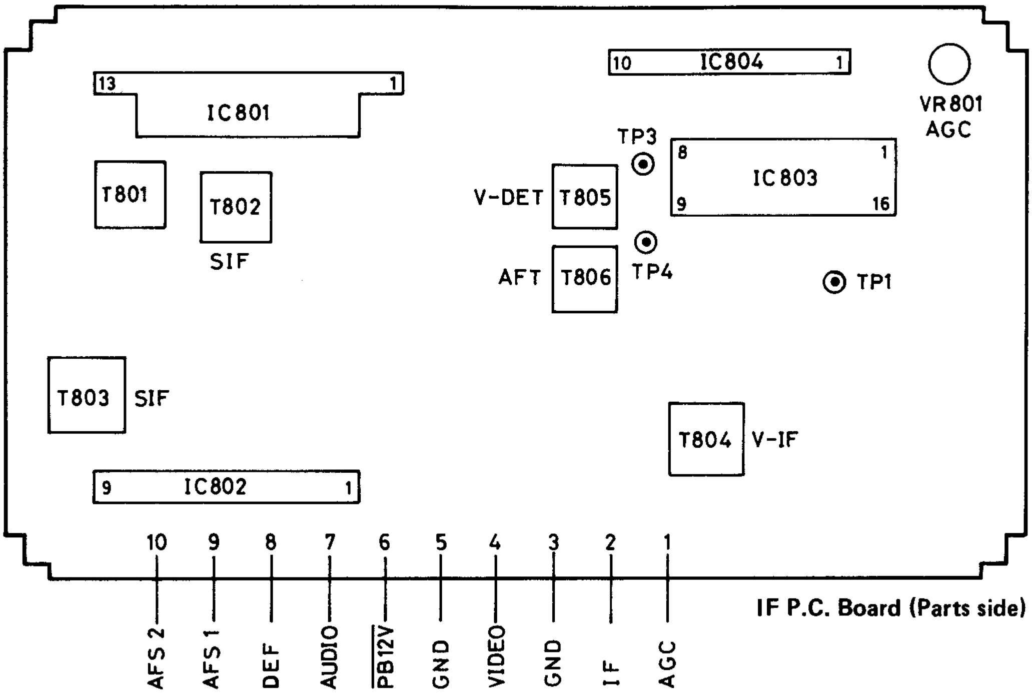
R810

Adjustment

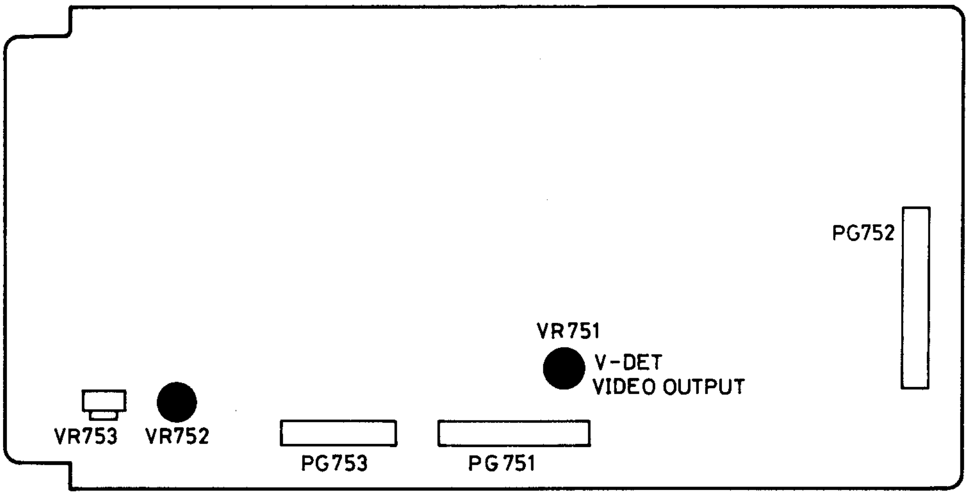
Measure the voltage at the AGC terminal of tuner pack-pin ④ and adjust R810 so that the voltage is 9.2V ± 0.1V.

7-7 TUNER/IF CIRCUIT [Except for UK model]

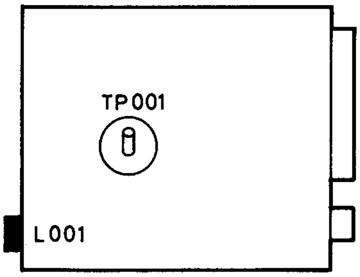
Adjust the tuner/IF section after removing the top cover and the shield cover of the IF section.


IC804
10
1
VR801
AGC
13
1
IC801
TP3
8
1
IC803
9
16
T801
T802
SIF
V-DET
T805
AFT
T806
TP4
TP1
T803
SIF
T804
V-IF
9
IC802
1
10
9
8
7
6
5
4
3
2
1
AFS 2
AFS 1
DEF
AUDIO
PB12V
GND
VIDEO
GND
IF
AGC

IF P.C. Board (Parts side)


PG752
VR751
V-DET
VIDEO OUTPUT
VR753
VR752
PG753
PG751

Tuner/IF P.C. Board (Parts side)



Tuner P.C. Board (Parts side)

Fig. 58

1. V-IF ADJUSTMENT

Connection

1) Connect the output of the TV-IF signal generator (markers, 31.9 MHz, 33.40 MHz, 34.47 MHz, 38.9 MHz, 40.4 MHz) to the IF input pins (2) and (3) (GND) of the IF circuit via the coupling circuit shown in Fig. 59.
2) Connect a resistor (50Ω) between TP3 and TP4, and then connect the oscilloscope to TP3.

Mode

EE mode

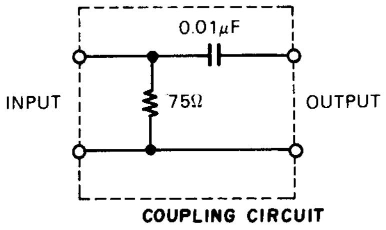


Fig. 59

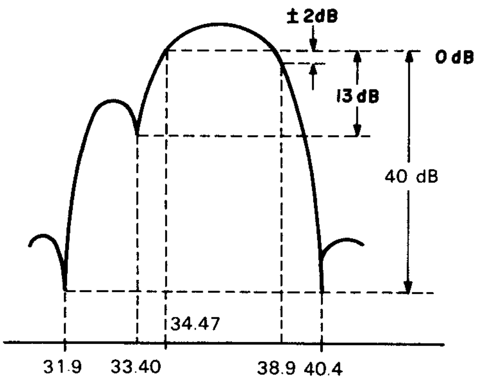


Fig. 60

Adjustment point

T804

Adjustment

1) Adjust T804 so that the characteristics shown in Fig. 60 are obtained with sensitivity of the oscilloscope at max, and output of the TV-IF signal generator at the minimum required level.
2) Remove the resistor (50Ω) described in item (2) of "Connecting test equipment", after adjustment is completed.

2. V-DET ADJUSTMENT

Connection

1) Connect the output of the TV-IF signal generator (markers, 38.9 MHz, 34.47 MHz) to the IF input pins (2) and (3) (GND) of the IF circuit.
2) Connect the output (DC6 ~ 12V) of the DC power generator to the test point terminal TP1.
3) Connect the oscilloscope to the Video output pins (4) and (5) (GND) of the IF circuit.

Mode

EE mode

Adjustment point

T805, VR751.

Adjustment

1) Adjust the output of the 38.9 MHz oscillator so that the input level of the IF input pin is 90 dBμ.
2) Set the oscilloscope to the DC mode and adjust the output voltage of the DC power generator so that the value (V_1) is −1.5V.
3) Adjust T805 so that V_1 is max. When V_1 is set to −1.5V±0.2V or more, readjust the output voltage of the DC power generator described in "Adjustment procedure (1)".
4) Adjust T805 so that the output of V_1 is max. and then set the oscilloscope to the "AC" mode. Adjust the output of the TV signal generator so waveform A shown in Fig. 61 is 1.2 Vp-p.
5) Check that the outputs at the 34.47 MHz and 38.9 MHz sections of the waveform are the same (B = C). Readjust V-IF (shown in item 1) when the outputs are very different.
6) Connect the oscilloscope to the video output pin (4) of the IF circuit. Adjust VR751 so that waveform A shown in Fig. 61 is 1.0 Vp-p.

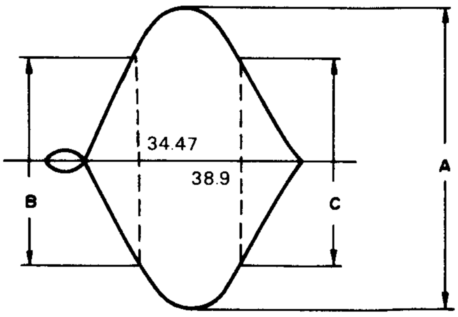


Fig. 61

3. AFT ADJUSTMENT

Connection

1) Connect the output of the 38.9 MHz oscillator to the IF input pins (2) and (3) (GND) of the IF circuit via the coupling circuit shown in Fig. 62.
2) Connect the oscilloscope to the IFT output pins (9) and (10) of the IF circuit.

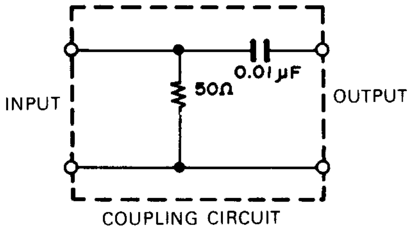


Fig. 62

Mode

EE mode

Adjustment point

T806

Adjustment

1) Adjust the output of the 38.9 MHz oscillator so that the input level of the IF input pins (2) and (3) is 90 dBμ.
2) Set the oscilloscope to the "DC" mode and adjust T806 so that the potential difference between the IFT output pins (9) and (10) is not present.

4. SIF ADJUSTMENT

Connection

1) Connect a UHF or VHF antenna output to the VTR antenna input terminals.
2) Connect a TV set to the VTR.

Mode

EE mode

Adjustment point

T803. T802

Adjustment

1) Select the channel with the best reception and adjust the set tso that the station is tuned in properly.
2) Close the channel preset cover and set the AFS switch to ON.
3) Adjust T803, T802 so that audio distortion is minimum and output is max.

5. PIF ADJUSTMENT

Connection

1) Connect the output of the TV signal generator to the VTR antenna input terminals and tune the set.
2) Connect the oscilloscope to the video output pin (4) of the IF circuit.

Mode

EE mode

Adjustment point

L001

Adjustment

1) Adjust L001 so that the characteristics shown in Fig. 63 can be obtained with sensitivity of the oscilloscope set to max, and output of the TV signal generator set to the min. required output.

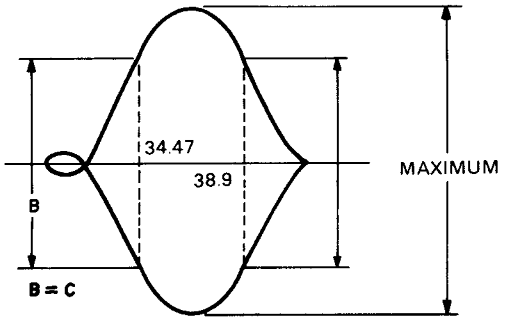


Fig. 63

6. VIDEO OUTPUT LEVEL ADJUSTMENT

Connection

1) Connect the output of the TV signal generator to the VTR antenna terminals, and tune the set.
2) Connect the oscilloscope to the video output pins (4) and (5) (GND) of the IF circuit.

Mode

EE mode

Adjustment point

VR751.

Adjustment

1) Adjust the output of the TV signal generator so that the output voltage at the test point terminal TP001 of the tuner is 80 dBμ.
2) Set the modulation signal of the TV signal generator to COLOR BAR with modulation 87.5%.
3) Adjust VR751 so that the output waveform of the oscilloscope is 0.95V ±0.03V.

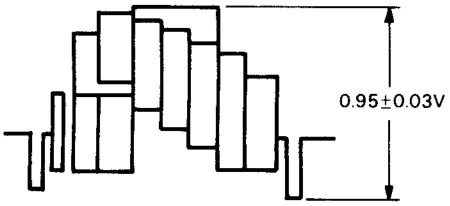


Fig. 64

7. AGC ADJUSTMENT

Connection

1) Connect the output of the signal generator to the VHF antenna terminals via the coupling circuit.
2) Connect the VTVM between pins ⑨ and ⑩ of IC803 in the IF circuit.

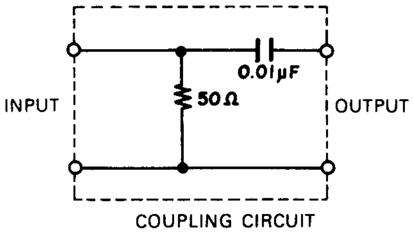


Fig. 65

Mode

EE mode

Adjustment point

VR801.

Adjustment

1) Set the output signal of the signal generator to 203.25 MHz, 69 dBμ. (75Ω open)
2) Set the tuning VR of the VTR so that the reading of the VTVM is 0V (potential difference between pin ⑨ and ⑩ of the IF circuit).
3) Close channel preset cover and set the AFS switch to ON.
4) Connect the VTVm to the AGC output pin (1) in the IF circuit. Adjust VR801 so that the value at that time is 6.0 ± 0.5V.

8. MECHANISM ADJUSTMENT

8-1 ADJUSTING MECHANISM STATE SWITCH INSTALLATION POSITION

The mechanism state switch is installed at the position near the supply reel at the bottom of the chassis. Adjust the installation position of the mechanism state switch according to the procedure shown below when the mechanism state switch is replaced.

(1) Turn the pulley installed to the shaft of the worm gear in the loading mechanism shown in Fig. 66 by hand in the unloading direction (counterclockwise Ⓐ) until it stops.

(2) Match the top of the triangular hole in the knob of the mechanism state sensor switch shown in Fig. 66 with the top of the triangle of the "STOP" position engraved on the body of the mechanism state switch.

(3) Tighten the mechanism state switch fixing screw Ⓑ and then load a blank tape and set the Stop ↔ F.FWD/Rewind ↔ REC/PLAY ↔ REC-PAUSE ↔ PLAY → Reverse visual search modes, to check that the mechanism operates normally. When the operation in any mode is faulty, readjust the mechanism state switch installation position.

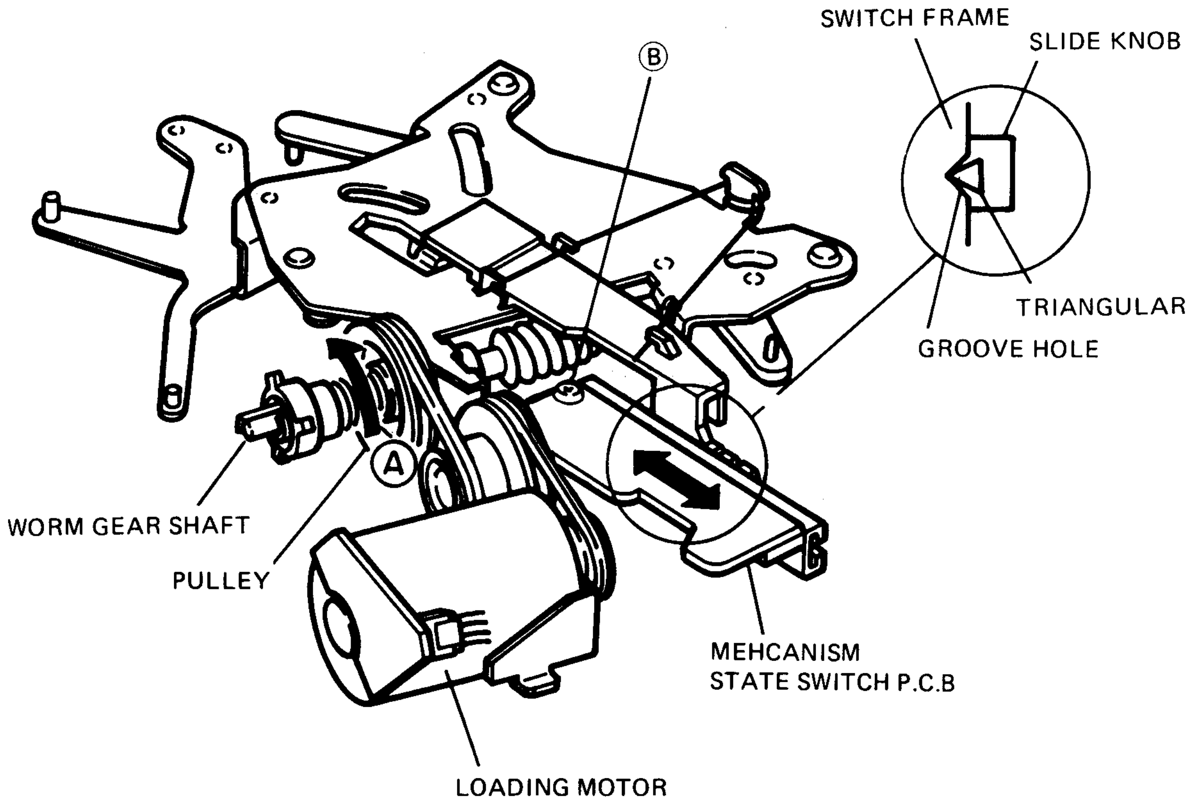

SWITCH FRAME
SLIDE KNOB
Ⓑ
TRIANGULAR
GROOVE HOLE
Ⓐ
WORM GEAR SHAFT
PULLEY
MEHCANISM
STATE SWITCH P.C.B
LOADING MOTOR

Fig. 66

8-2 TRANSPORT SYSTEM ADJUSTMENT

The adjustment items shown below are related to the tape transport system.

(1) Reel disk height adjustment
(2) Tension pole adjustment
(3) Guide pole height adjustment
(4) AC head height/azimuth/tilt adjustment
(5) Guide roller height adjustment

With the tape transport system, it is basically most important that the route from the supply reel disk to the take-up reel disk shown in Fig. 67 is clean without creases and is stable. The tape transport system is adjusted precisely in the factory while paying utmost attention. When parts related to the tape transport system are replaced, the tape transport should be kept stable by adjusting only the replaced parts. When the adjustment of the parts is not done or parts other than those replaced are moved, the adjustment of the parts concerning the tape transport system may get out of order and result in unsatisfactory operation.

Do not loosen the fixing screws for the parts shown below. When parts are to be replaced due to breakage, etc., be sure to install the new parts to the same positions where the replaced parts were installed before, and then perform the precise adjustment described in the item "Guide roller height adjustment".

(1) Catcher on the supply or take-up side.
(2) inclined guide on the supply or take-up side.

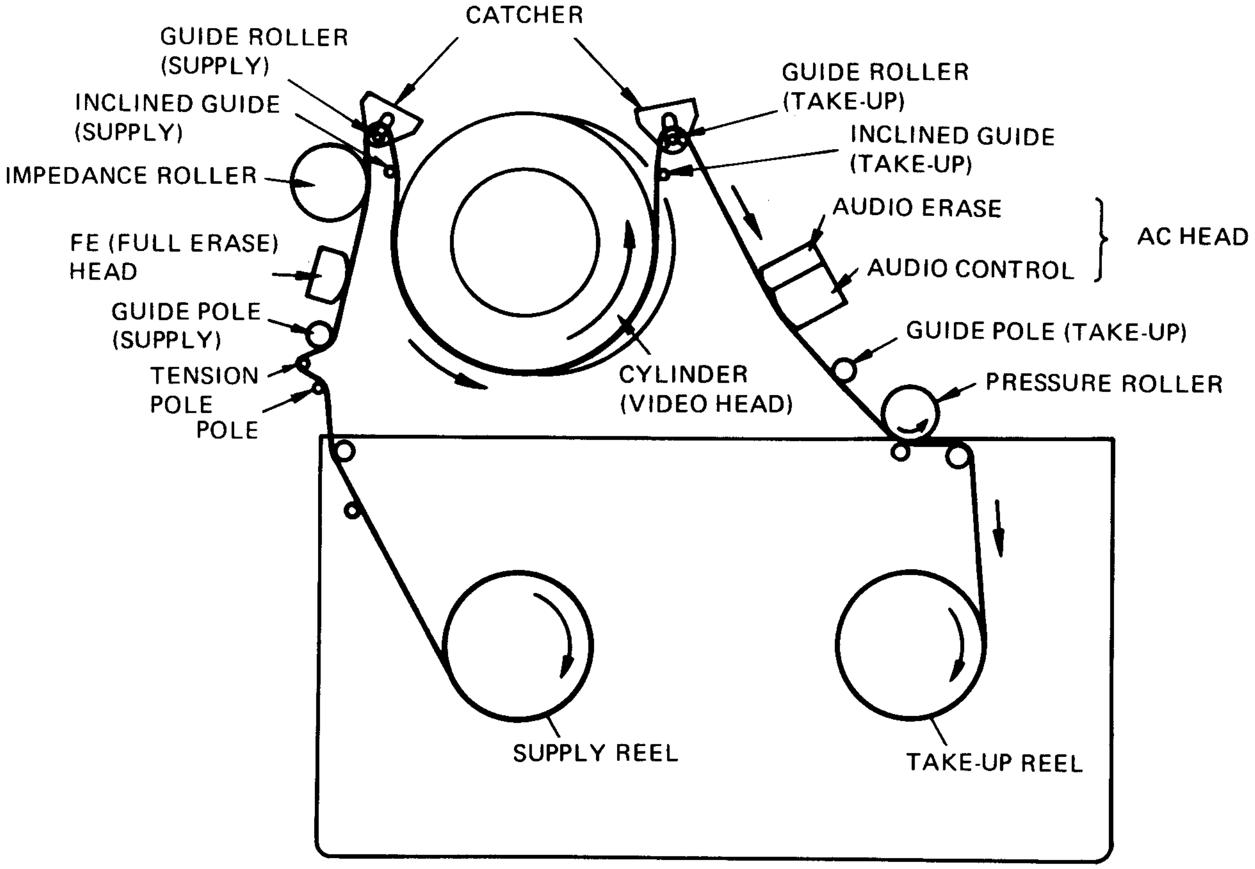

CATCHER
GUIDE ROLLER (SUPPLY)
INCLINED GUIDE (SUPPLY)
IMPEDANCE ROLLER
FE (FULL ERASE) HEAD
GUIDE POLE (SUPPLY)
TENSION POLE
POLE
GUIDE ROLLER (TAKE-UP)
INCLINED GUIDE (TAKE-UP)
AUDIO ERASE
AUDIO CONTROL
AC HEAD
GUIDE POLE (TAKE-UP)
PRESSURE ROLLER
CYLINDER (VIDEO HEAD)
SUPPLY REEL
TAKE-UP REEL

Fig. 67

(1) REEL DISK HEIGHT ADJUSTMENT (Fig. 68))

Jigs required for adjustment

Master plane, reel height adjusting jig

Adjustment procedure

1) Remove the top panel and cassette holder.
2) Mount the master plane, place the reel height adjusting jig on the master plane as shown in Fig. 68, and check whether or not the reel disk enters between side A and side B of the reel height adjusting jig. When the reel disk does not enter between side A and side B, adjust the quantity of washers (1) (2 types: 0.25 mm and 0.5 mm) inserted between the reel disk and the base of the reel disk.

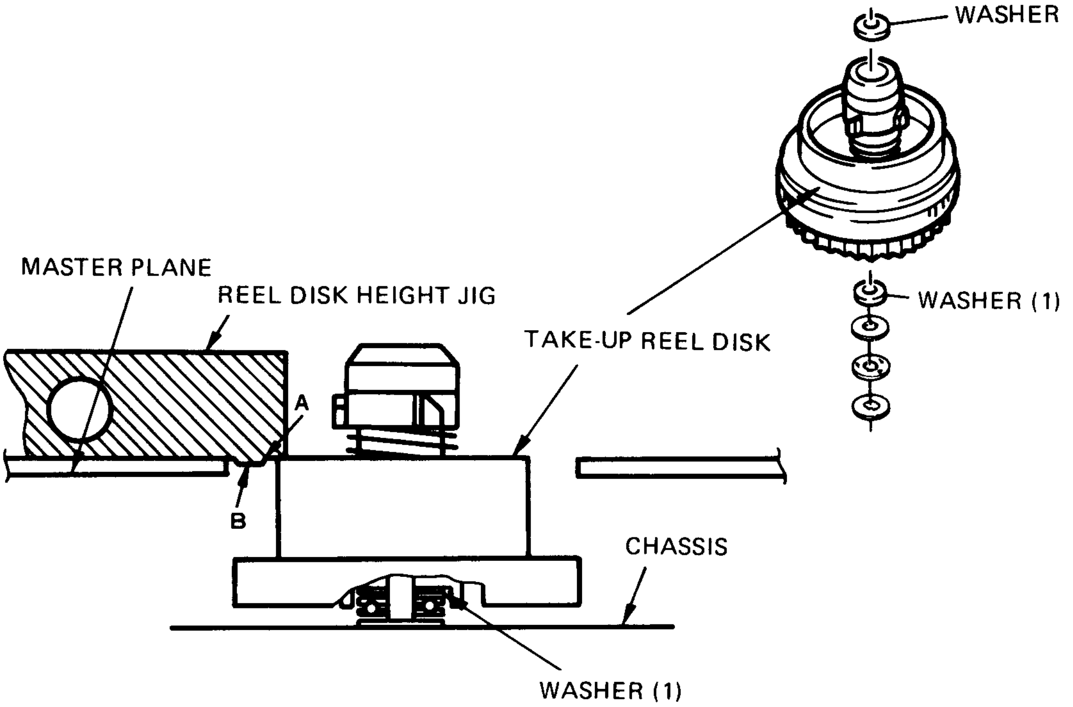

WASHER
MASTER PLANE
REEL DISK HEIGHT JIG
WASHER (1)
TAKE-UP REEL DISK
A
B
CHASSIS
WASHER (1)

Fig. 68

(2) TENSION POLE ADJUSTMENT (Fig. 69)

Jig required for adjustment

Back tension meter

Adjustment procedure

Perform this adjustment after removing the cassette panel to set the VTR horizontal.

1) Remove the cassette panel.

   Note: Remove the top panel, cassette holder and tension band when replacing the tension arm.

2) Shut off the supply end sensor (no light can be received), and set the VTR to the play mode without loading a tape. Check that the gap between the tension pole and chassis shown in Fig. 69 is 1.5 mm ± 0.5 mm at that time. When it is not, loosen the tension band fixing screw, insert the tip of a (–) screwdriver into the groove in the loading motor holder and the groove in the tension band bracket shown in Fig. 69. to move the tension band bracket by turning the screwdriver. Tighten the tension band fixing screw and apply locking paint after adjustment is completed.

3) Mount the back tension meter and set the VTR to the play mode. Check that the reading of the back tension meter is 35 ± 8 g · cm at that time. If not, loosen the spring hanger fixing screw shown in Fig. 63, insert the tip of the (–) screwdriver into the groove in the chassis and the groove in the spring hanger, and move the tension hanger installation position while turning the screwdriver to adjust that the back tension is 35 ± 2 g · cm. Tighten the tension hanger fixing screw and apply locking paint after adjustment is completed.

   Note: The back tension values are different between during confirmation and adjustment.

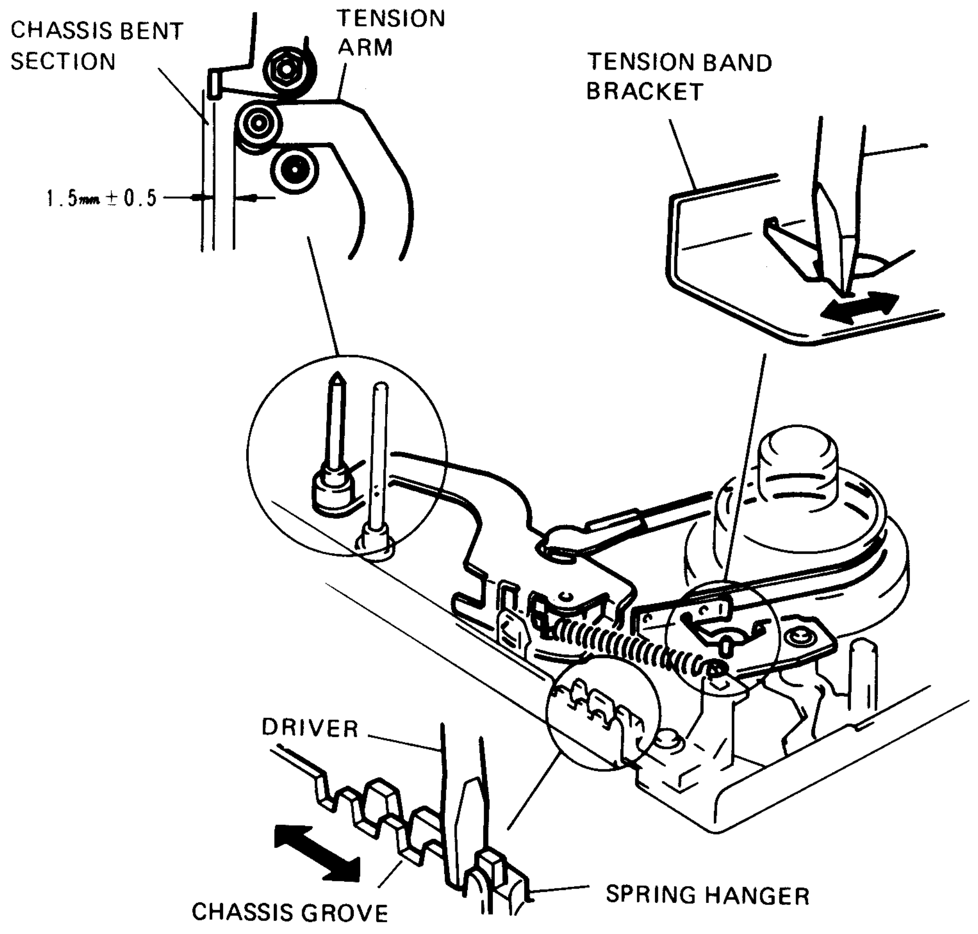


Fig. 69

(3) GUIDE POLE HEIGHT ADJUSTMENT (Fig. 70)

Jigs required for adjustment

Master plane, reel height adjusting jig, blank tape

Adjustment procedure

Guide pole height adjustment: Perform rough adjustment using the master plane and reel height adjusting jig first, and then run a blank tape to adjust the height precisely.

1) Remove the top panel and cassette holder.
2) Mount the master plane and place the reel height adjusting jig on the master plane shown in Fig. 70. Then, roughly adjust the guide pole height adjusting nut so that the gap between the flange of the guide pole and the reel height adjusting jig is within 0 - 0.2 mm when side C of the jig is applied to the guide pole.
3) Install the cassette holder, load a blank tape and play it back. Check that the tape does not ride over the flange of the guide pole and runs stably at that time.

   When it does not, fine-adjust the guide pole height.
4) Tighten the adjusting nut and apply locking paint after adjustment is completed.

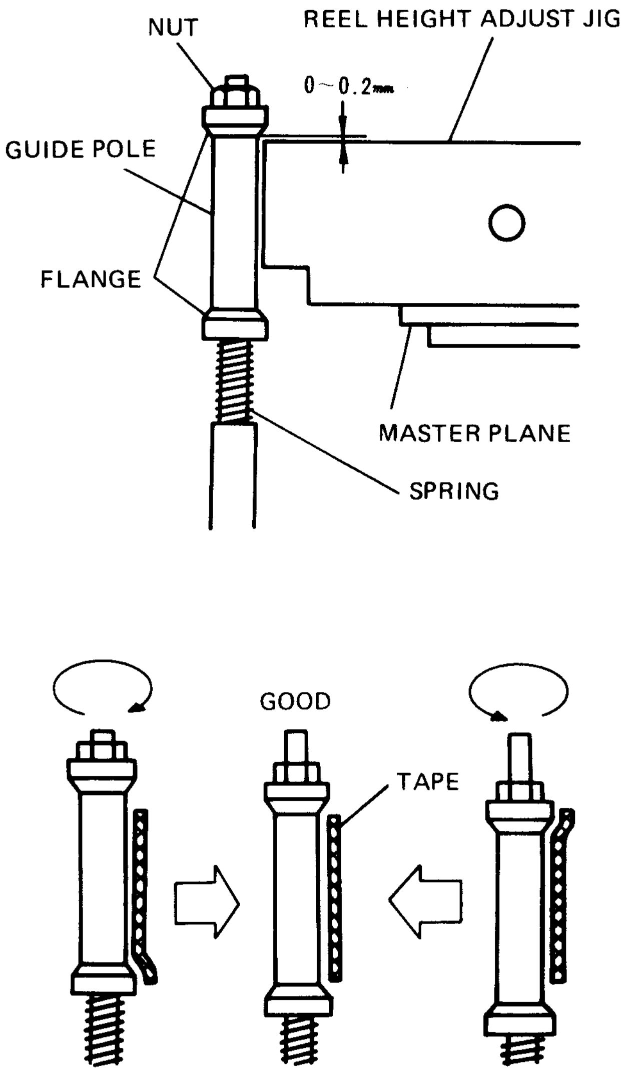


Fig. 70

(4) AC HEAD ADJUSTMENT (Fig. 71)

The AC head adjustment consists of the audio play output/recording bias level adjustment described in the "Circuit adjustment" as well as the height/azimuth/tilt adjustment described in the following. Perform all these adjustments when the AC head is replaced. The adjustment details below show the adjustment procedure when the AC head is replaced; be sure to perform precise adjustment after rough adjustment.

AC head rough-adjustment

Jigs required for adjustment

Master plane, reel height adjusting jig, blank tape

Adjustment procedure

1) Tighten the screw shown in Fig. 71 through the bottom of the head base (2) via the spring so that it projects approx. 1 mm above the top of the AC head base (1).
2) Roughly adjust the tilt adjusting screw shown in Fig. 65 and azimuth adjusting screw so that the gap between the AC head base (1) and head base (2) is approx. 2.3 mm, and the AC head base (1) and head base (2) are parallel.
3) Remove the cassette holder and mount the master plane.
4) Place the reel height adjusting jig on the master plane as shown in Fig. 72. Then roughly adjust the AC head height adjusting nut so that the gap between the reel height adjusting jig and the shield case of the AC head is approx. 0.5 mm when the side C of jig is applied to the AC head.
5) Install the cassette holder, load a blank tape and set the VTR to the play mode. Check that there is no conspicuous curling or protruding around the AC head at that time. The ideal AC head height is with the bottom of the tape approx. shown fig. 73, 0.3 mm from the bottom of the core of the CTL head. Roughly adjust the tilt adjusting screw, azimuth adjusting screw and AC head height adjusting nut when conspicuous curling or protruding occurs.
6) Perform precise adjustment

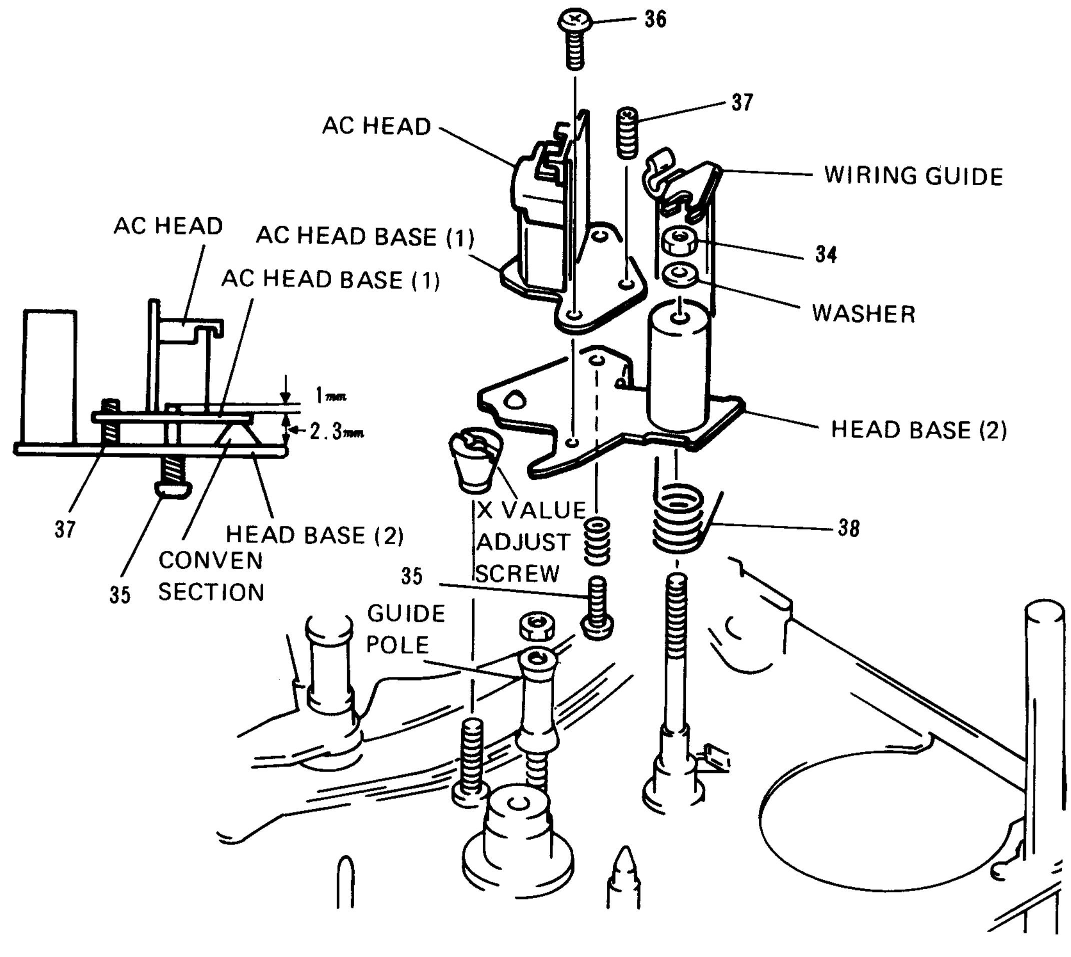


Fig. 71

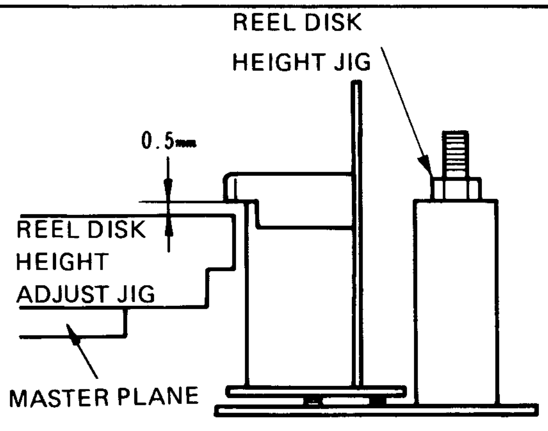

REEL DISK
HEIGHT JIG
0.5mm
REEL DISK
HEIGHT
ADJUST JIG
MASTER PLANE

Fig. 72

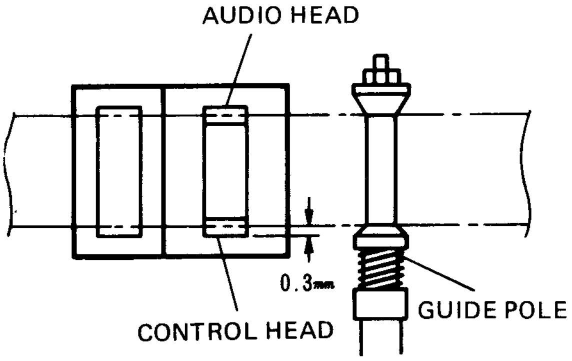

AUDIO HEAD
0.3mm
CONTROL HEAD
GUIDE POLE

Fig. 73

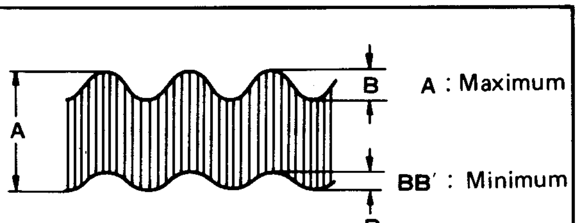

A
B
A : Maximum
BB' : Minimum
B

Fig. 74

AC HEAD PRECISE ADJUSTMENT

Jig required for adjustment

Alignment tape

Adjustment procedure

1) Connect the L ch audio output and CH-1 of the oscilloscope, and connect the R ch audio output and CH-2.
2) Adjust playback level controls RT401L, R described in the audio circuit adjustment for the maximum outputs.
3) Play back the audio 7 kHz signal on the alignment tape. Turn the adjustment screws for the tilt, azimuth and the AC head height alternately so the audio outputs from the both channels shown in Fig. 74 are maximum and the envelopes are flat and stable. When the audio output levels from the two channels differ, adjust the level to their average value.
4) Confirm that the phases of both channels match. When they differ, readjust the azimuth adjustment screw.
5) Perform the playback level adjustment described in the audio circuit adjustment.

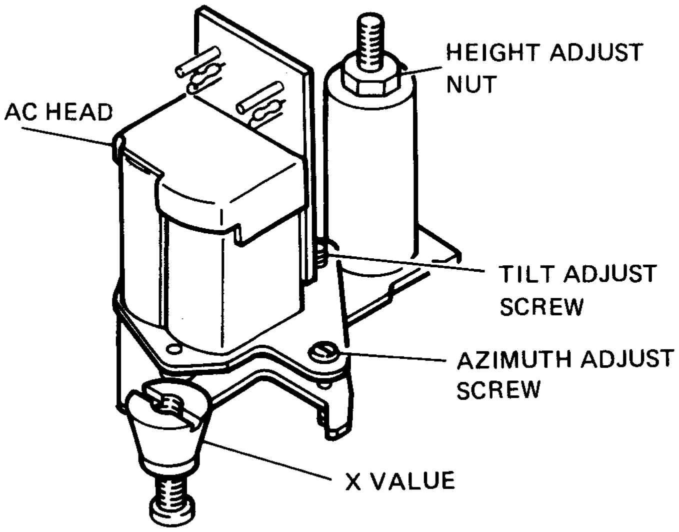

HEIGHT ADJUST
NUT
AC HEAD
TILT ADJUST
SCREW
AZIMUTH ADJUST
SCREW
X VALUE

Fig. 75-1

(5) GUIDE ROLLER HEIGHT ADJUSTMENT

Jig required for adjustment

Alignment tape

adjustment procedure

1) Remove the top panel and shield cover, and play back a blank tape. Check that conspicuous curling, protruding or lifting does not occur around the tape guide of the lower cylinder at that time. When any curling, protruding or lifting occurs, set the VTR to the stop mode after checking the back tension, and then loosen the guide roller fixing screw shown in Fig. 76 to set the VTR to the play mode again, and roughly adjust the guide roller height.
2) Connect the oscilloscope to the FM output terminal TP202.
3) Play back the alignment tape and adjust the tracking VR at the front of the VTR so that the FM signal output is max Turn the tracking VR in either direction so that the FM signal output is 75% of the max. value, after adjustment is completed.
4) Check the FM signal envelope; conspicuous fluctuations should not be present and the ratio between the max. section and min. section (this is called "flatness"), 60% or more. When the FM signal waveform is as shown in Fig. 77 and below the specifications shown above, adjust the supply guide roller. On the other hand when the waveform is as shown in Fig. 78 and over the specifications shown above, adjust the take-up guide roller.

   Do not turn the guide roller more than 1 turn, at that time.
5) Load a blank tape, and record the color bar signal or a TV program for 2 - 3 minutes.
6) Play back the section recorded in item 5). Check that the FM signal envelope is within the specifications described in item 4).
7) Tighten the guide roller fixing screw after adjustment is completed.

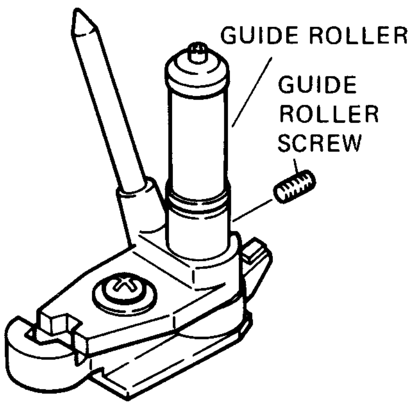
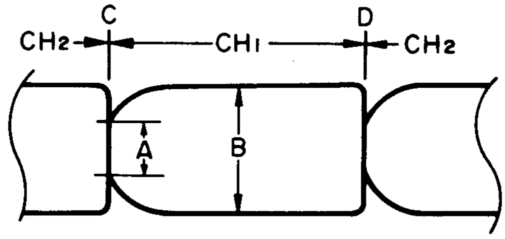
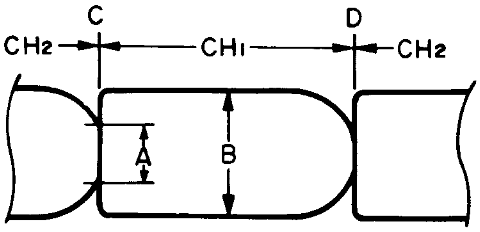


Fig. 76



$A \geq 0.6B$

Fig. 77



$A \geq 0.6B$

Fig. 78

(6) COMPRESSION STRENGTH AND TORQUE

Item	VTR operation mode	Measured reel	Measurement value	Remarks
Pressure roller compression strength	PLAY-PAUSE	————	1.2 ± 0.2 kg	Fig. 79
Main brake torque	STOP	Supply & take-up reels	170g·cm or more	Note 1
Slack removal torque	Unloading	Supply reel	90~190g·cm	Note 1
F. FWD torque	Fast-forward	Take-up reel	400g·cm or more	Note 1
Rewind torque	Rewind	Supply reel	400g·cm or more	Note 1
Take-up torque	Play	Take-up reel	90~180g·cm	Note 1
Back tension	F. FWD	Supply reel	4~15g·cm	Note 2
	Rewind	Take-up reel		

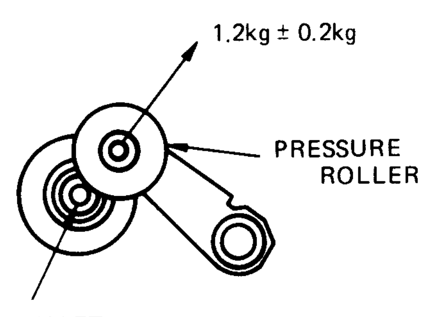

1.2kg ± 0.2kg
PRESSURE ROLLER
CAPSTAN SHAFT

Fig. 79

Note 1: The value measured while sliding the torque gauge at the speed of 0.8 rps using the torque gauge and the torque gauge adaptor.
However, the main brake torque shows the value when measured while turning the take-up reel clockwise and the supply reel, counterclockwise by hand at the speed of 0.8 rps.

Note 2: The value measured while drawing the take-up reel disk counterclockwise and the supply reel disk, clockwise at the speed of 50 mm/S using the dummy reel and fan type tension gauge.

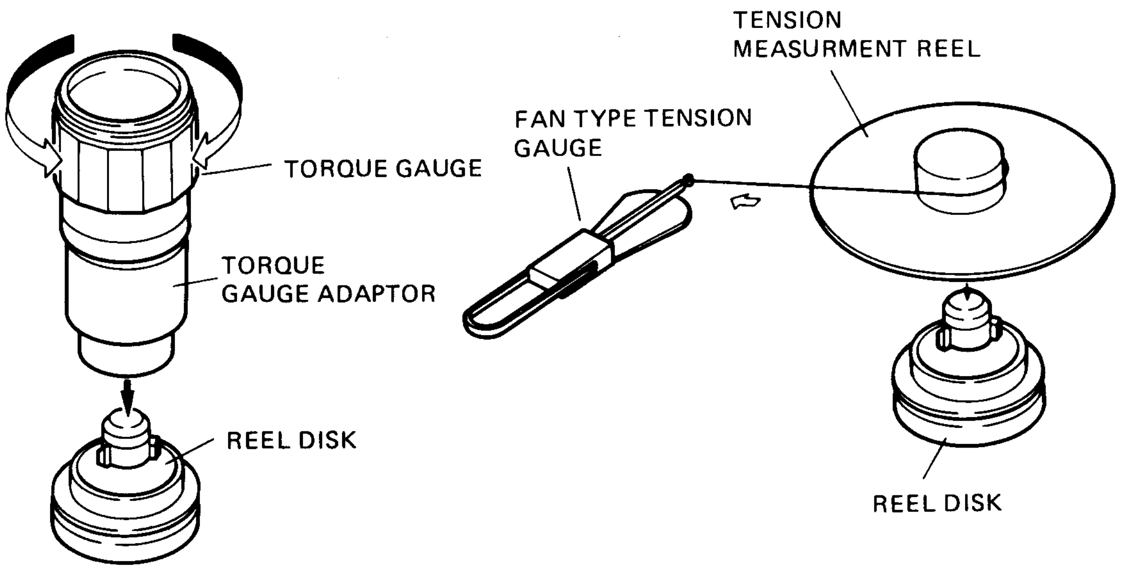

TORQUE GAUGE
TORQUE GAUGE ADAPTOR
REEL DISK
FAN TYPE TENSION GAUGE
TENSION MEASURMENT REEL
REEL DISK

Fig. 80

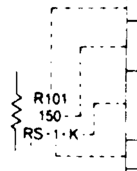
MEMO

SCHEMATIC/CIRCUIT BOARD DIAGRAMS

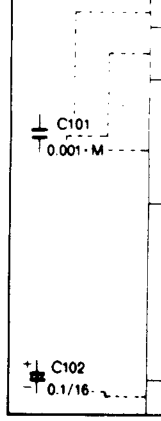
Note

1 Voltage measured at base of chassis with minimum volume control and no signal
( ) are shown in recording condition

2 Nomenclature of Resistors and Capacitors



	Circuit No
Value	No indicated Ω(Ohm) M 1000 kΩ
Tolerance	No indicated ±5% K ±10% M ±20%
Wattage	No indicated ¼W
Sort	No indicated Carbon film RC Composition RW Wire wound RS Oxide metal film RN Fixed metal film



	Circuit No	
Value	No indicated μF P PF	
Tolerance	No indicated ±10% J ± 5% M ±20% Z +80%, −20% D ±0.5pF C ±0.25pF	
Sort	╪	Ceramic
	╪*	Electrolitic
	╪M	Mylar
	╪P	Polyester
	╪S	Styrol
Voltage	No indicated 50WV	

3 Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort

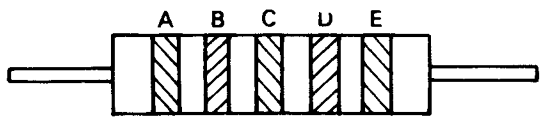
4 When replacing capacitors marked with *, use specified ones stated on parts list since required temperature characteristics

Cautions on use of MOS IC

1. The MOS IC is inserted in black foam for shipment. This foam is a conductor which short-circuits between the leads to prevent damage. Do not remove ICs from this foam during their storage. Avoid removing ICs from this foam, placing them on plastic which is likely to be charged with static electricity or inserting them into styrol foam.
2. High voltages may be applied during soldering caused by leakages from the soldering iron, so be sure to ground the tip of the soldering iron or use a low voltage soldering iron.
3. The human body, clothes made of synthetic fibres or nylon gloves may be charged with several thousands volts of static electricity because of friction, so a workers should be grounded.
4. Be sure to ground measuring instruments such as oscilloscopes, VTVMs, etc. used for repairs.

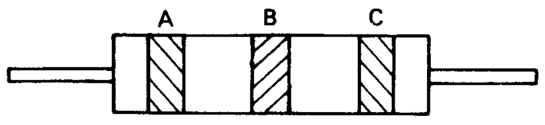
HOW TO READ CAPACITY AND INDUCTANCE OF RESISTOR SHAPE CAPACITORS AND COILS

CAPACITOR



CAPACITY: A B × C [PF]
TOLERANCE: D
RATED VOLTAGE: BODY COLOR
Pink: 25V
Green: 50V
CHARACTERISTICS: E

COIL

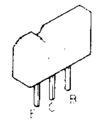
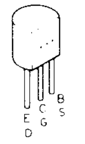
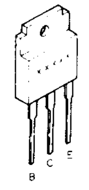
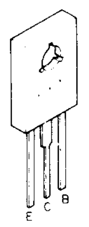


INDUCTANCE: A B × C [μH]

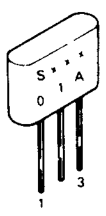
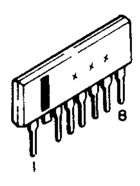
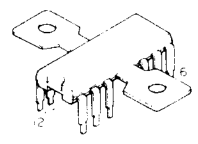
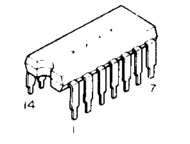
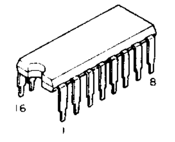
COLOR	A, B	C	D	E
Black	0	10^0	±20%	For temperature compensation
Brown	1	10^1		
Red	2	10^2		
Orange	3	10^3		
Yellow	4	10^4		
Green	5	10^5		
Blue	6			
Violet	7			
Grey	8		±30%	High dielectric constant type
White	9			For temperature compensation
Gold		10^{-1}	±5±	
Silver		10^{-2}	±10%	High dielectric constant type

SEMICONDUCTOR CONFIGURATION

TRANSISTOR

1	2	3	4
			
2SC2021	2SA673 2SA844 2SA952 2SA1198 2SC1213 2SA934 2SC2320 2SC458 2SD467	2SD1276 2SD972	2SD882 2SA715

IC

5	6	7	8	9
				
DN6838	M5218L	HA13402	μPD4013C BA6304 μPD4081 μPD4066 μPD4069C LA7755 HD14066	TA7629
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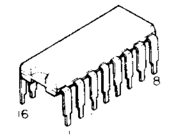	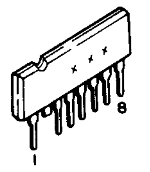	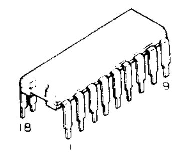	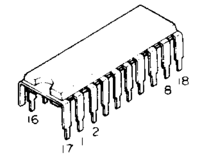	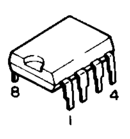
BA7100	BA340	M50127AP	HA11749	MSL9378

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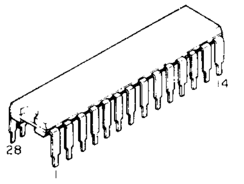	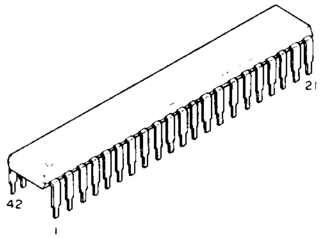	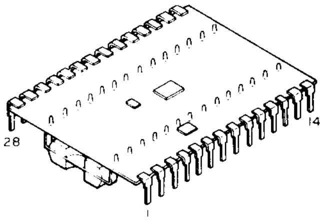
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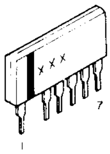
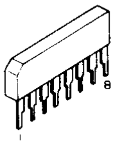
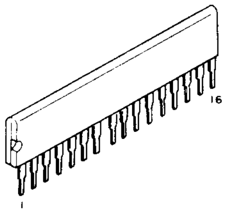
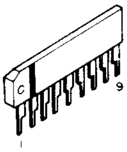
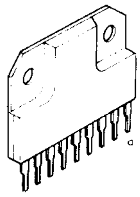
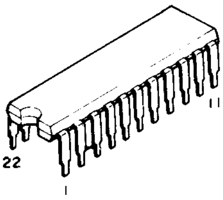
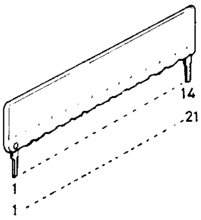
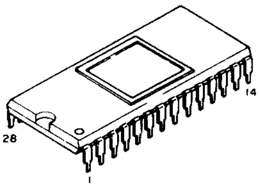
18	19	20	21
			
HA1406	LA7016 μPC1373H	BA7026L	NJD6506

22	23	24	25
			
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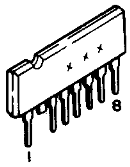
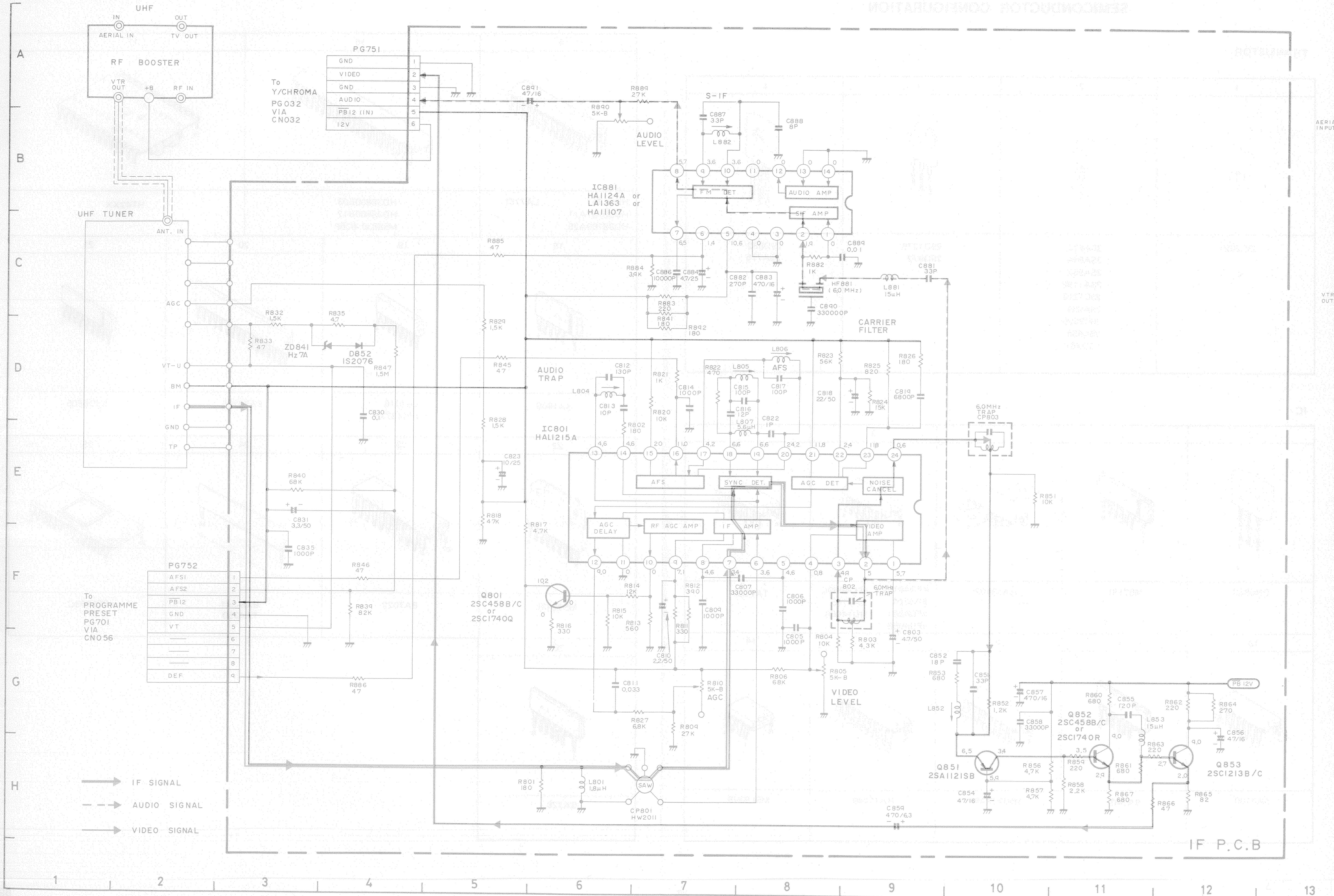
26

BA328

TUNER IF[For UK model]



UHF
IN
OUT
AERIAL IN
TV OUT
RF BOOSTER
VTR OUT
+B
RF IN
PG751
GND
VIDEO
GND
AUDIO
PB12 (IN)
12V
To Y/CHROMA PG032 VIA CN032
UHF TUNER
ANT. IN
AGC
VT-U
BM
IF
GND
TP
C891 47/16
R889 27K
R890 5K-B
AUDIO LEVEL
S-IF
C887 33P
L882
C888 8P
IC881 HA1124A or LA1363 or HA11107
FM DET
AUDIO AMP
SIF AMP
C889 0.01
R882 1K
HF881 (6.0 MHz)
C890 330000P
L881 15uH
C881 33P
CARRIER FILTER
R885 47
R884 3.9K
C886 10000P
C884 47/25
C882 270P
C883 470/16
R883 220
R841 180
R892 180
R832 1.5K
R835 47
R833 47
ZD841 Hz7A
D852 1S2076
R847 1.5M
R829 1.5K
C830 0.1
R845 47
AUDIO TRAP
C812 130P
L804
C813 10P
R821 1K
R802 180
R820 10K
C814 1000P
R822 470
L805
C815 100P
C816 12P
L807 5.6uH
L806
AFS
C817 100P
C822 1P
R823 56K
C818 22/50
R825 820
R824 15K
R826 180
C819 6800P
R828 1.5K
C823 10/25
IC801 HA11215A
AFS
SYNC DET.
AGC DET
NOISE CANCEL
AGC DELAY
RF AGC AMP
IF AMP
VIDEO AMP
6.0MHz TRAP CP803
R851 10K
CP 802
6.0MHz TRAP
R840 68K
C831 3.3/50
C835 1000P
R818 4.7K
R817 4.7K
PG752
AFS1
AFS2
PB12
GND
VT
DEF
To PROGRAMME PRESET PG701 VIA CN056
R846 47
R839 82K
R886 47
Q801 2SC458B/C or 2SC1740Q
R816 330
R814 12K
R815 10K
R813 560
R812 390
R811 330
C810 2.2/50
C809 1000P
C807 33000P
C806 1000P
C805 1000P
R804 10K
R803 4.3K
C803 47/50
R805 5K-B
VIDEO LEVEL
R806 68K
C811 0.033
R810 5K-B
AGC
R827 6.8K
R809 27K
R801 180
L801 1.8uH
SAW
CP801 HW2011
C852 18P
R853 680
C851 33P
L852
R852 1.2K
C857 470/16
C858 33000P
Q851 2SA1121SB
C854 47/16
R856 4.7K
R857 4.7K
R860 680
C855 120P
L853 15uH
Q852 2SC458B/C or 2SC1740R
R859 220
R858 2.2K
R861 680
R867 680
R862 220
R863 220
R864 270
C856 47/16
Q853 2SC1213B/C
R866 47
R865 82
PB 12V
C859 470/63
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AUDIO SIGNAL
VIDEO SIGNAL
IF P.C.B
A
B
C
D
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F
G
H
1
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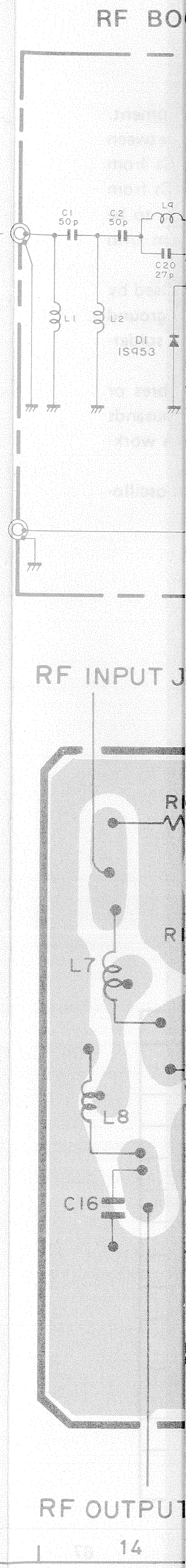
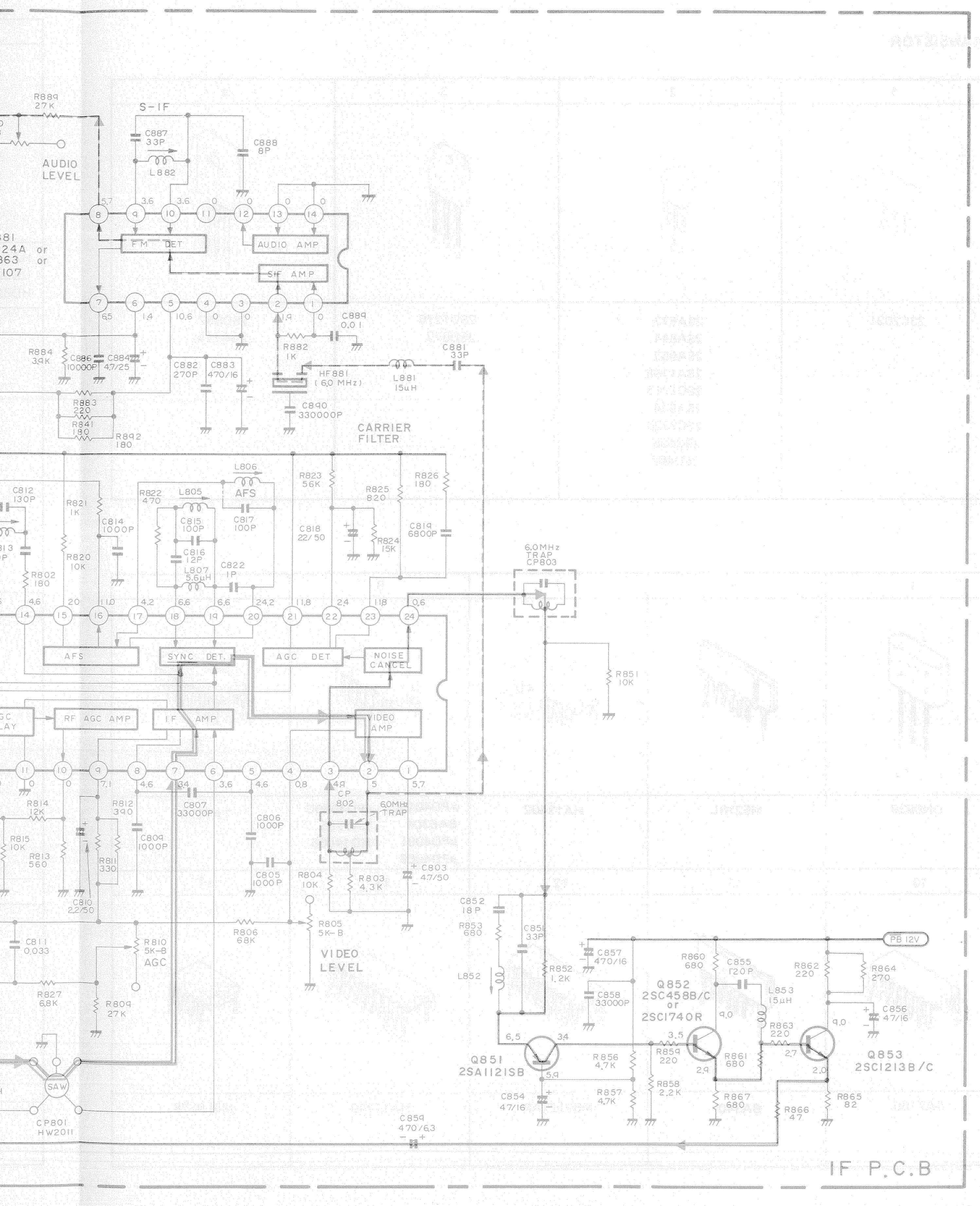
12
13

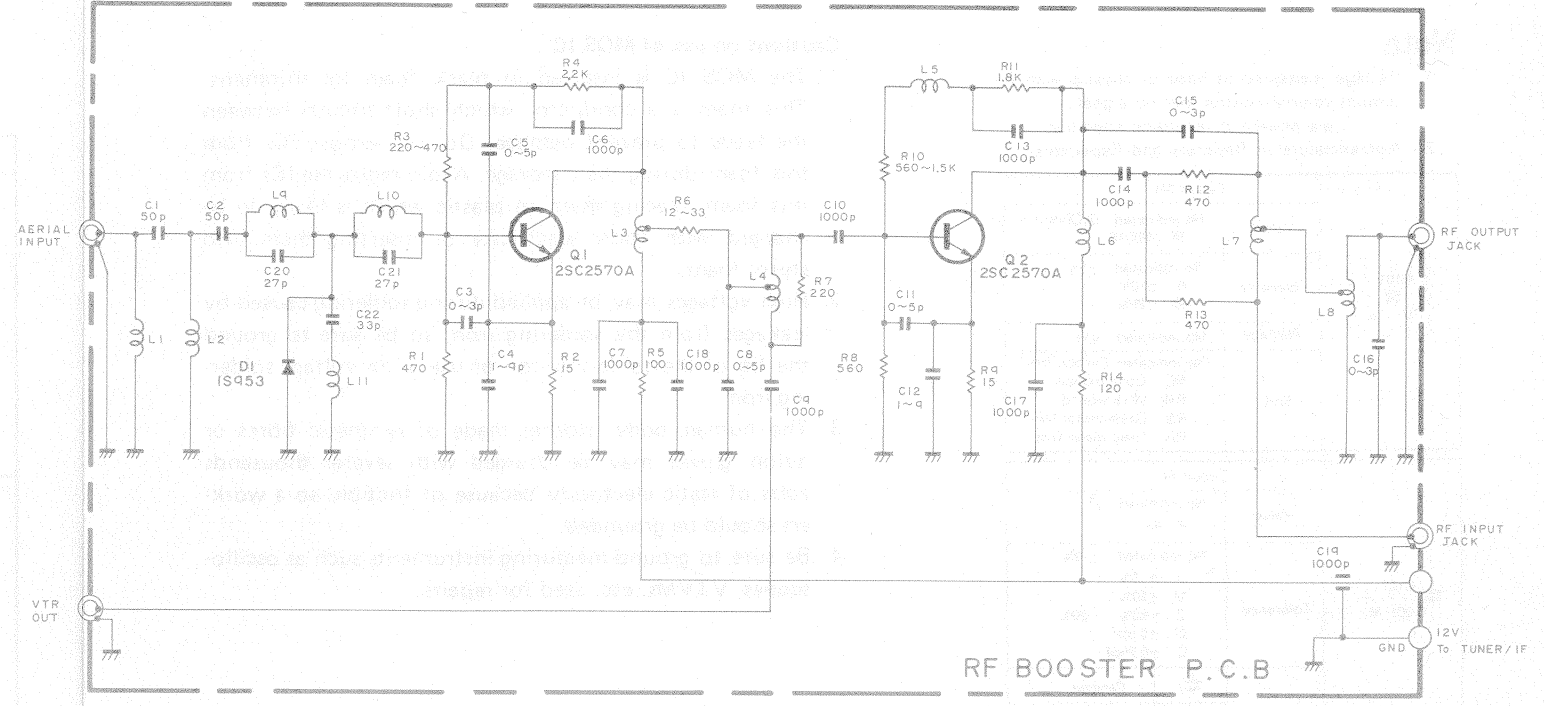
RF BO

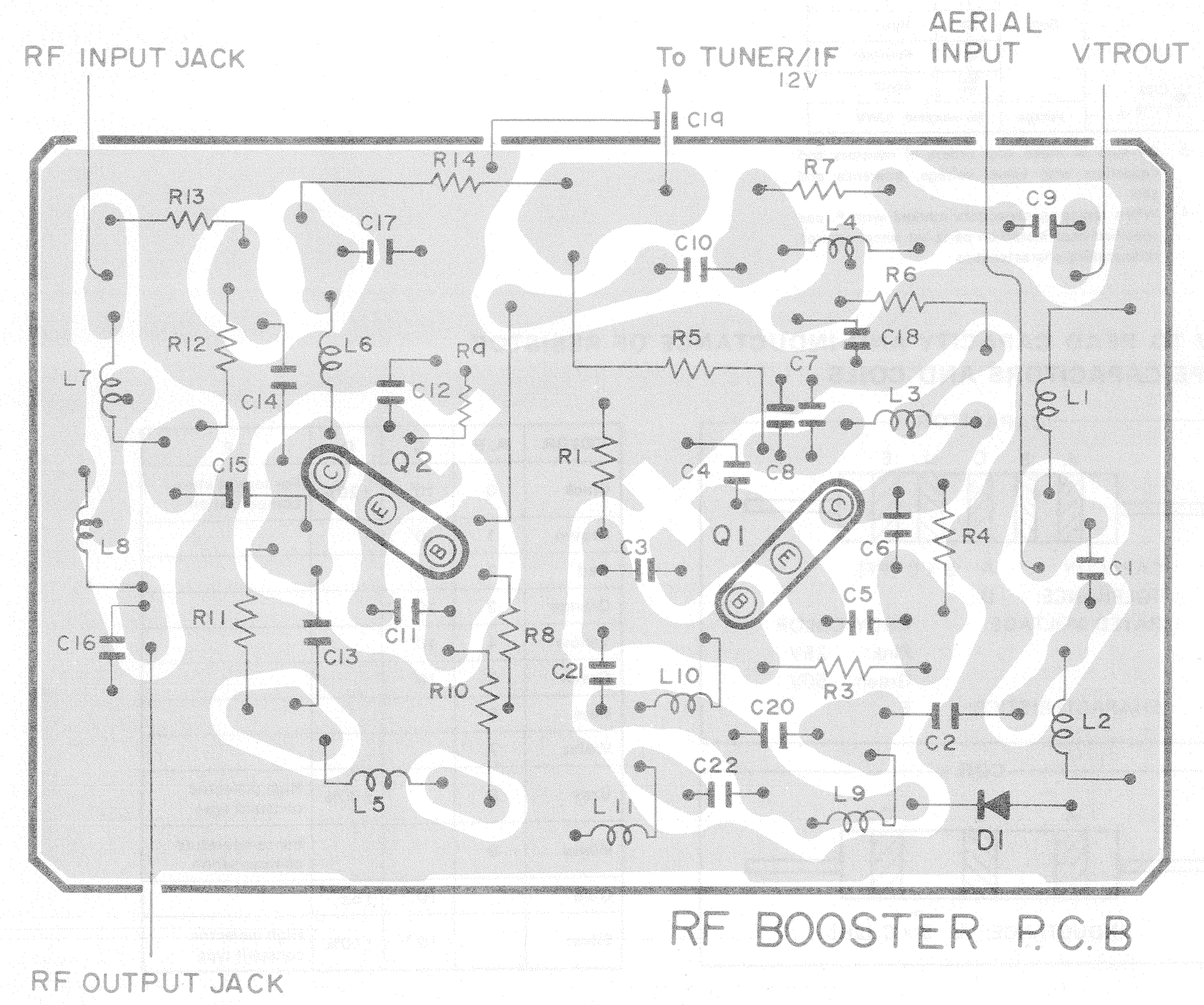


AERIAL INPUT
C1 50p
C2 50p
L9
C20 27p
L1
L2
D1 1S953
VTR OUT
RF INPUT J
L7
L8
C16
RF OUTPUT
14


R889 27K
S-IF
C887 33P
L882
C888 8P
AUDIO LEVEL
FM DET
AUDIO AMP
SIF AMP
C889 0.01
R882 1K
HF881 (6.0 MHz)
L881 15μH
C881 33P
C890 330000P
CARRIER FILTER
R884 3.9K
C886 10000P
C884 47/25
C882 270P
C883 470/16
R883 220
R841 180
R892 180
C812 130P
R821 1K
R822 470
L805
L806
AFS
C815 100P
C817 100P
C816 12P
L807 5.6μH
C822 1P
C814 1000P
R820 10K
R802 180
R823 56K
R825 820
R826 180
C818 22/50
R824 15K
C819 6800P
6.0MHz TRAP CP803
AFS
SYNC DET
AGC DET
NOISE CANCEL
R851 10K
RF AGC AMP
IF AMP
VIDEO AMP
R814 12K
R812 390
C807 33000P
CP 802
6.0MHz TRAP
C806 1000P
C804 1000P
R815 10K
R813 560
R811 330
C805 1000P
R804 10K
R803 4.3K
C803 47/50
C810 2.2/50
C811 0.033
R806 68K
R805 5K-B
VIDEO LEVEL
R810 5K-B
AGC
R827 6.8K
R809 27K
SAW
CP801 HW2011
C852 18P
R853 680
C851 33P
L852
R852 1.2K
C857 470/16
C858 33000P
R860 680
C855 120P
Q852 2SC458B/C or 2SC1740R
L853 15μH
R862 220
R864 270
C856 47/16
PB 12V
R863 220
Q853 2SC1213B/C
Q851 2SA1121SB
R856 4.7K
R859 220
R861 680
R858 2.2K
R857 4.7K
R867 680
R866 47
R865 82
C854 47/16
C859 470/6.3
IF P.C.B

RF BOOSTER[For UK model]

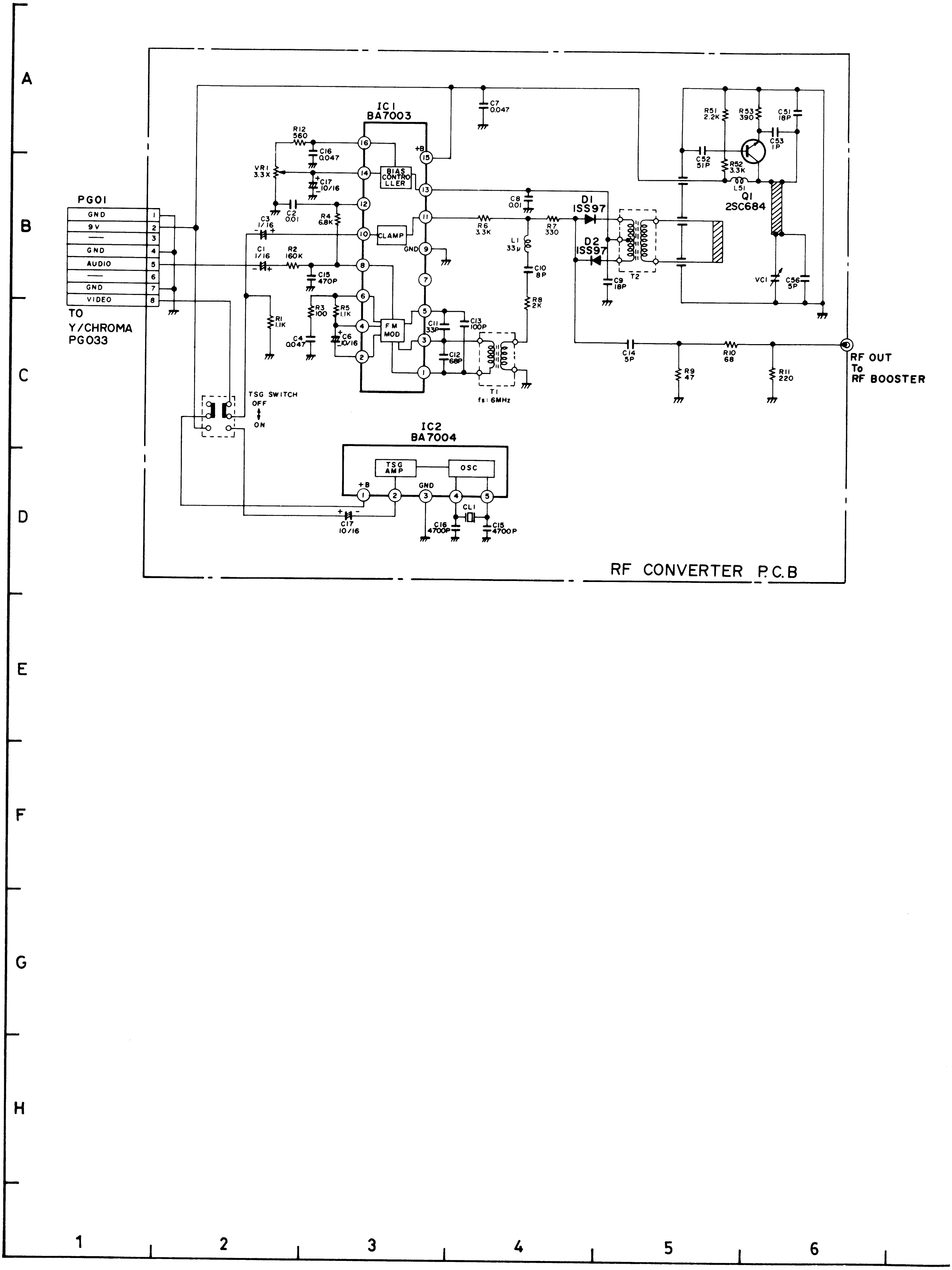

AERIAL INPUT
C1 50p
C2 50p
L9
L10
C20 27p
C21 27p
R3 220~470
R4 2.2K
C5 0~5p
C6 1000p
Q1 2SC2570A
L3
R6 12~33
C10 1000p
L4
R7 220
C3 0~3p
C22 33p
D1 1S953
L11
R1 470
C4 1~4p
R2 15
C7 1000p
R5 100
C18 1000p
C8 0~5p
C9 1000p
L1
L2
L5
R11 1.8K
R10 560~1.5K
C13 1000p
Q2 2SC2570A
C11 0~5p
R8 560
C12 1~4
R9 15
C17 1000p
R14 120
C15 0~3p
C14 1000p
R12 470
L6
L7
R13 470
L8
C16 0~3p
RF OUTPUT JACK
RF INPUT JACK
C19 1000p
12V
GND
To TUNER/IF
VTR OUT
RF BOOSTER P.C.B


RF INPUT JACK
To TUNER/IF 12V
AERIAL INPUT
VTROUT
C19
R14
R13
C17
R7
C9
C10
L4
R6
C18
R12
L6
R9
C12
R5
C7
L7
C14
Q2
L3
L1
C15
C4
C8
R1
C
E
B
Q1
R4
L8
C3
C6
C5
C1
R11
C11
R8
C13
R3
C16
R10
C21
L10
C20
C2
L2
C22
L9
L5
L11
D1
RF OUTPUT JACK

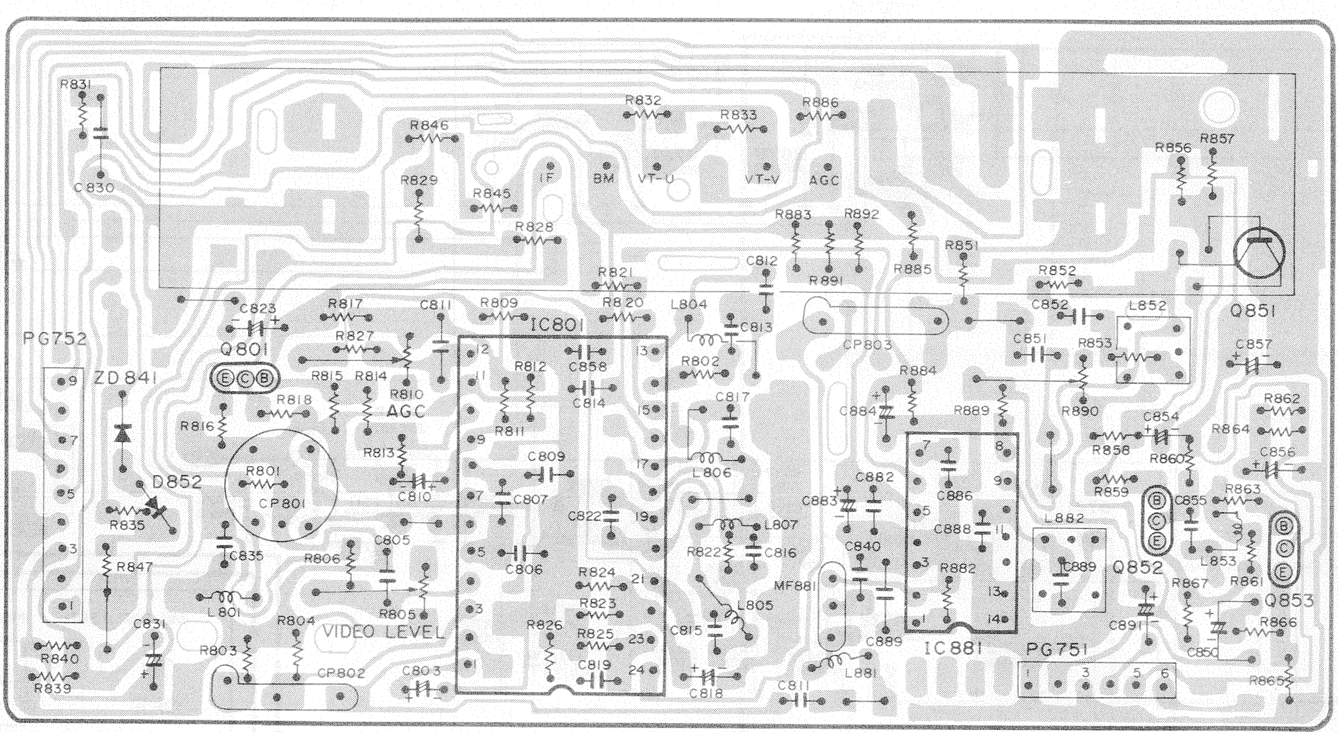
RF BOOSTER P.C.B

7 8 9 10 11 12 13 14 15 16 17 18 19

RF CONVERTER[For UK model]


A
B
C
D
E
F
G
H
1
2
3
4
5
6
PG01
GND
9V
—
GND
AUDIO
—
GND
VIDEO
1
2
3
4
5
6
7
8
TO
Y/CHROMA
PG033
IC1
BA7003
R12
560
C16
0.047
VR1
3.3K
C17
10/16
C2
0.01
R4
6.8K
C3
1/16
C1
1/16
R2
160K
C15
470P
R3
100
R5
1.1K
C4
0.047
C6
10/16
R1
1.1K
BIAS CONTRO LLER
CLAMP
FM MOD
+B
GND
C7
0.047
C8
0.01
R6
3.3K
R7
330
L1
33μ
C10
8P
R8
2K
C11
33P
C13
100P
C12
68P
T1
fs: 6MHz
D1
ISS97
D2
ISS97
C9
18P
T2
R51
2.2K
R53
390
C51
18P
C53
1P
C52
51P
R52
3.3K
L51
Q1
2SC684
VC1
C56
5P
C14
5P
R9
47
R10
68
R11
220
RF OUT
To
RF BOOSTER
TSG SWITCH
OFF
ON
IC2
BA7004
TSG AMP
OSC
+B
GND
C17
10/16
C16
4700P
CL1
C15
4700P
RF CONVERTER P.C.B

IF[for UK model]


R831
C830
R846
R829
R845
IF
BM
VT-U
VT-V
AGC
R828
R832
R833
R886
R856
R857
R883
R892
R851
R885
R891
R852
R821
C812
R820
L804
C813
CP803
C852
L852
Q851
C851
R853
C857
R884
R889
R890
C854
R862
R864
C884
R858
R860
C856
R859
R863
C855
L853
R861
Q852
Q853
R867
C891
R866
C850
R865
PG751
IC881
C882
C883
C886
C888
C840
R882
C889
L881
L882
MF881
C811
C818
L805
C815
R822
C816
L807
L806
C817
R802
C858
C814
C809
C807
C822
C806
R824
R823
R825
C819
R826
C803
IC801
R809
C811
R817
C823
Q801
R827
R812
R811
R815
R814
R810
AGC
R818
R816
ZD841
PG752
R813
C810
R801
CP801
D852
R835
R847
C835
R806
C805
R805
VIDEO LEVEL
L801
R804
C831
R803
CP802
R840
R839

TUNER / IF P.C.B

PG751

1	GND
2	VIDEO
3	GND
4	AUDIO
5	$\overline{\text{PB}}$12V
6	12V

To
Y/CHROMA
PG032
VIA
CN032

PG752

1	AFS 1
2	AFS 2
3	$\overline{\text{PB}}$12V
4	GND
5	VT
6	—
7	—
8	—
9	DEF.

To
PROGRAMME
PRESET
PG701

IC801

12	9	13	4.6
11	0	14	4.6
10	0	15	2.0
9	7.1	16	11.0
8	4.6	17	4.2
7	3.4	18	6.6
6	3.6	19	6.6
5	4.6	20	24.2
4	0.8	21	11.8
3	4.9	22	2.4
2	5	23	11.8
1	5.7	24	0.6

IC881

7	6.5	8	5.7
6	1.4	9	3.6
5	10.6	10	3.6
4	0	11	0
3	0	12	0
2	1.9	13	0
1	0	14	0

Q801

B	0
C	10.2
E	0

Q852

B	3.5
C	9.0
E	2.9

Q851

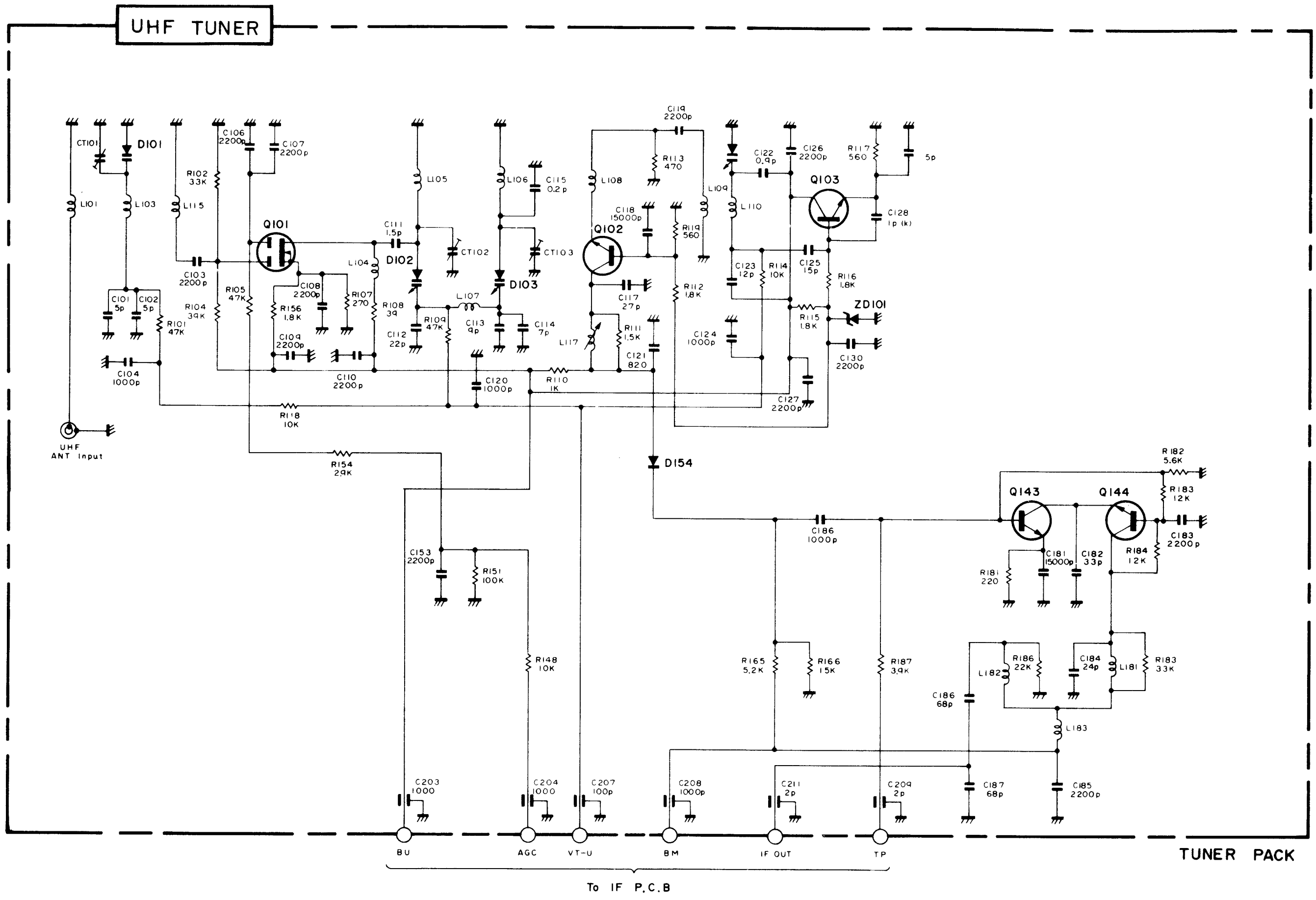
B	5.9
C	3.4
E	6.5

Q853

B	2.7
C	9.0
E	2.0

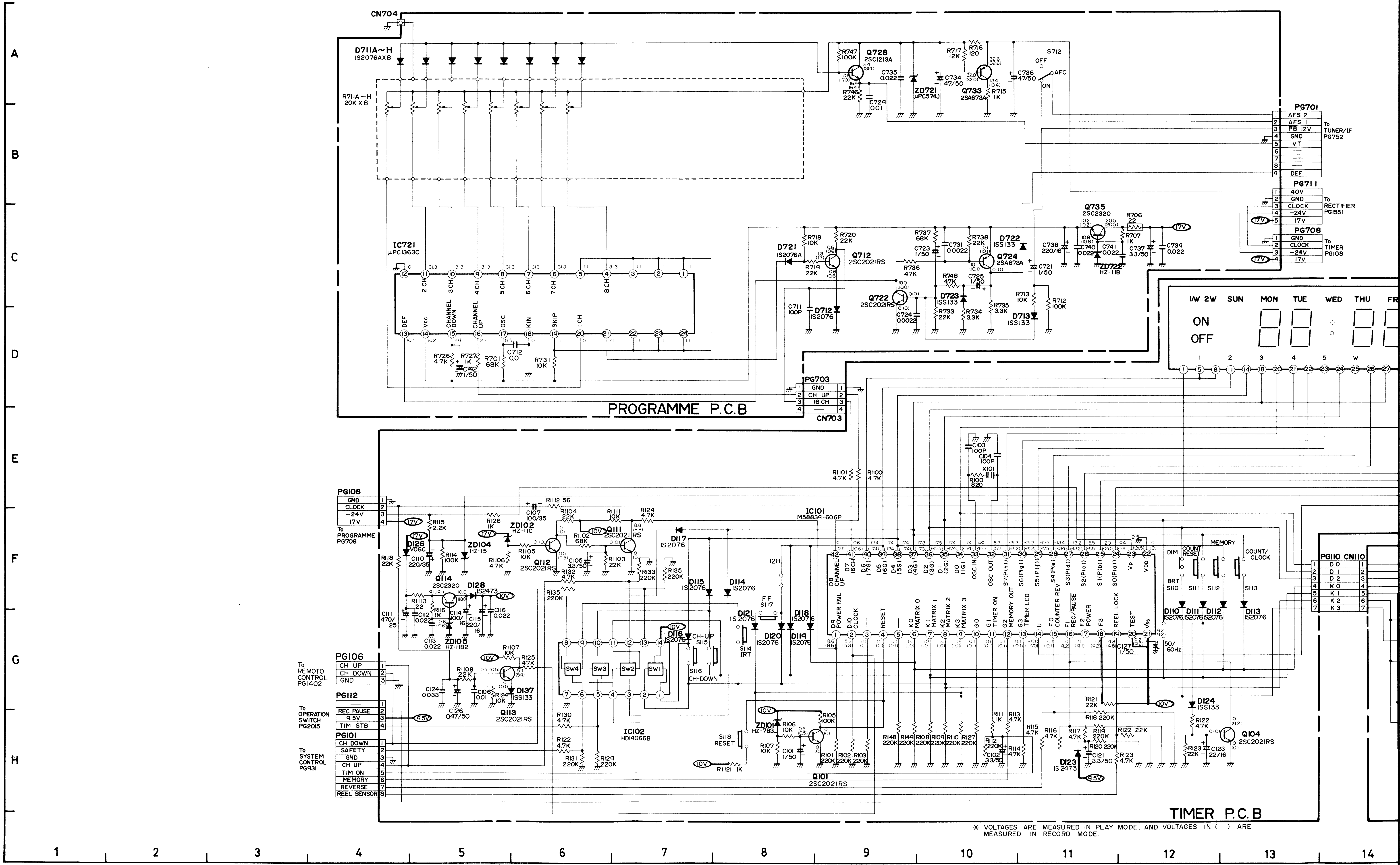
7 8 9 10 11 12 13

TUNER PACK[for UK model]

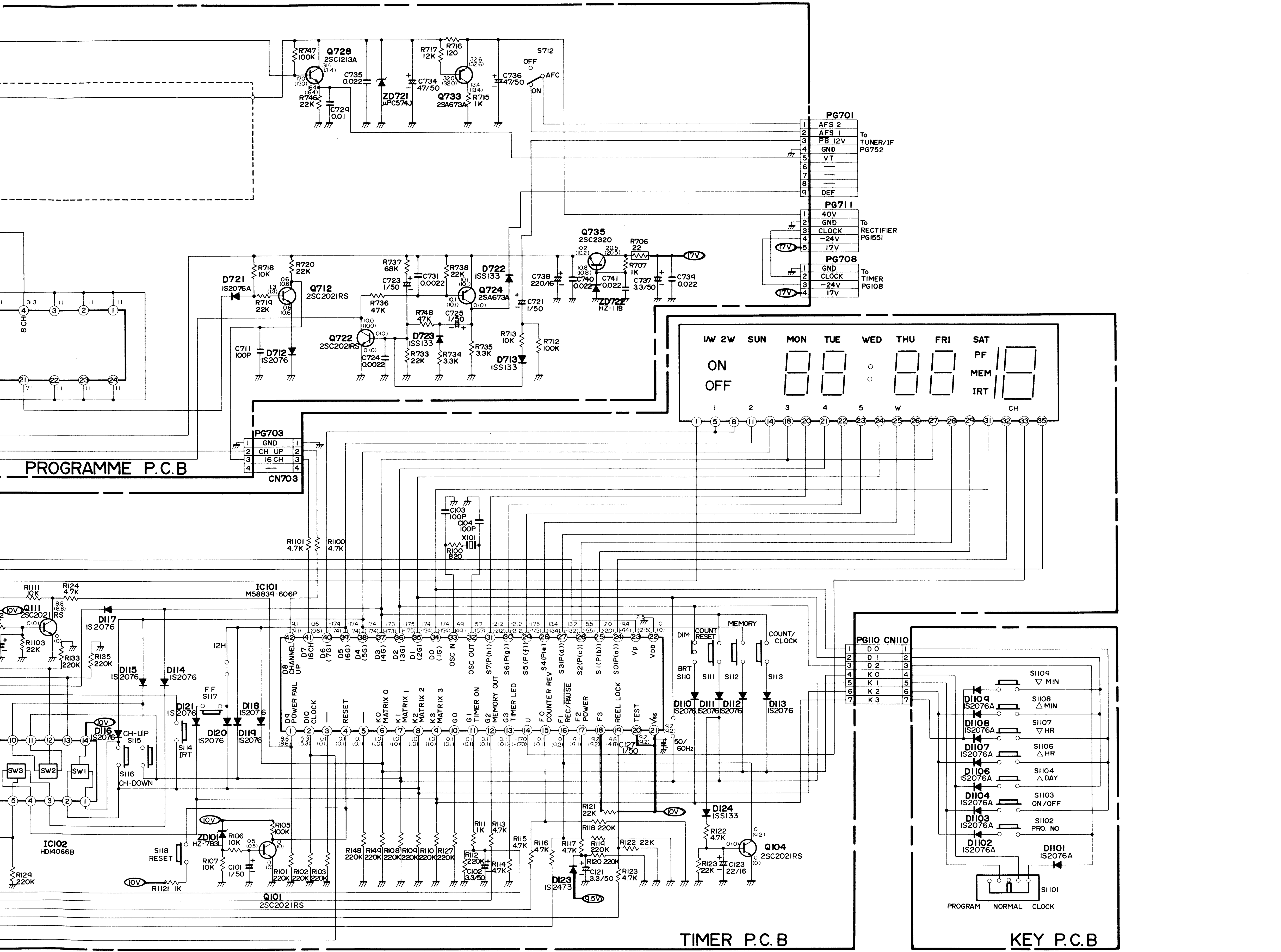

UHF TUNER
CT101
D101
L101
L103
C101 5p
C102 5p
R101 47K
C104 1000p
R118 10K
UHF ANT input
R102 33K
L115
C103 2200p
R104 39K
R105 47K
C106 2200p
C107 2200p
Q101
C108 2200p
R156 1.8K
C109 2200p
R107 270
L104
C110 2200p
R154 29K
C111 1.5p
D102
L105
CT102
R108 39
C112 22p
R109 47K
L107
C113 9p
L106
C115 0.2p
CT103
D103
C114 7p
C120 1000p
R110 1K
C153 2200p
R151 100K
R148 10K
L108
C118 15000p
Q102
C117 27p
L117
R111 1.5K
C121 820
C119 2200p
R113 470
R119 560
R112 1.8K
D154
L109
L110
C122 0.9p
C126 2200p
Q103
R117 560
5p
C128 1p (k)
C123 12p
R114 10K
C125 15p
R116 1.8K
R115 1.8K
ZD101
C124 1000p
C130 2200p
C127 2200p
C186 1000p
R165 5.2K
R166 15K
R187 3.9K
Q143
Q144
R182 5.6K
R183 12K
C183 2200p
R181 220
C181 15000p
C182 33p
R184 12K
C186 68p
L182
R186 22K
C184 24p
L181
R183 33K
L183
C187 68p
C185 2200p
C203 1000
C204 1000
C207 100p
C208 1000p
C211 2p
C209 2p
BU
AGC
VT-U
BM
IF OUT
TP
To IF P.C.B
TUNER PACK

14 15 16 17 18 19

TIMER/PROGRAMME/KEY[For UK model]

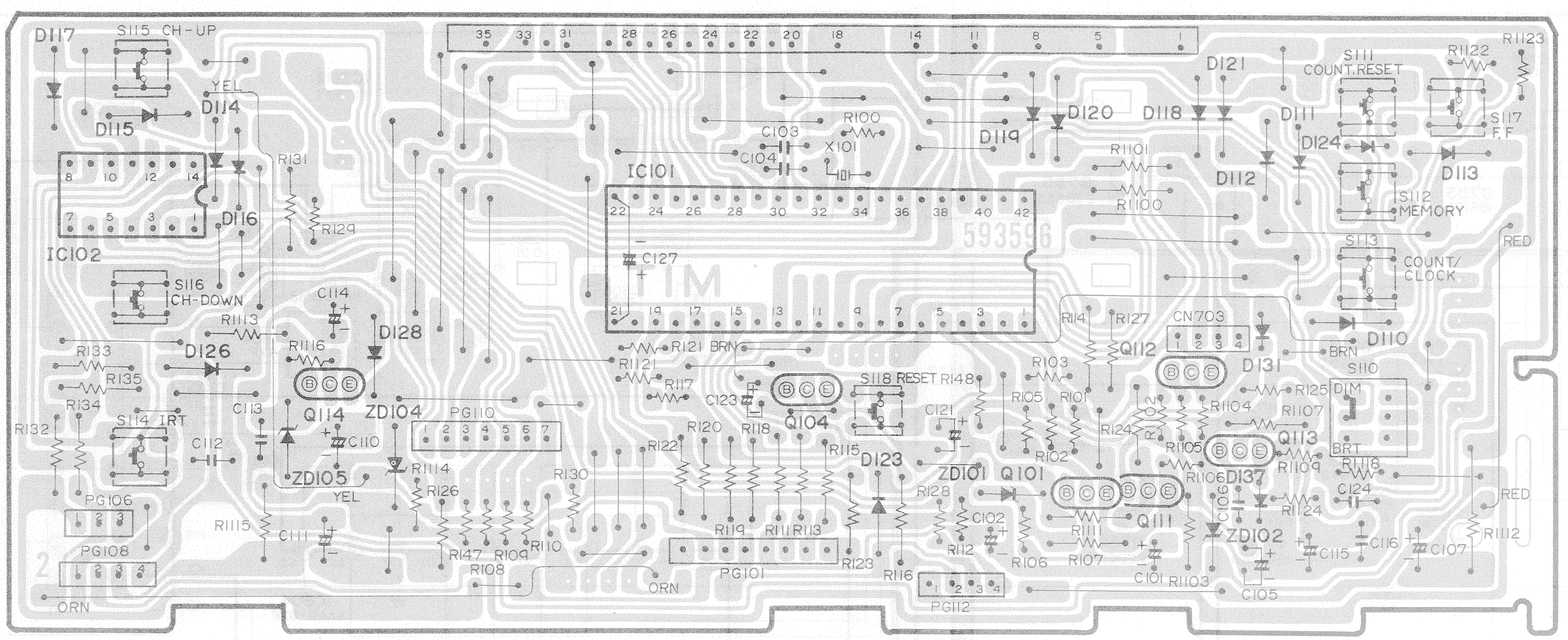

CN704
D711A~H
1S2076AX8
R711A~H
20K X 8
IC721
μPC1363C
2 CH
3 CH
4 CH
5 CH
6 CH
7 CH
8 CH
DEF
Vcc
CHANNEL DOWN
CHANNEL UP
OSC
KIN
SKIP
1 CH
R726 4.7K
R727 1K
C742 1/50
R701 68K
C712 0.01
R731 10K
PROGRAMME P.C.B
PG703
GND
CH UP
16 CH
CN703
Q728 2SC1213A
R747 100K
R746 22K
C729 0.01
C735 0.022
ZD721 μPC574J
C734 47/50
R717 12K
R716 120
Q733 2SA673A
R715 1K
C736 47/50
S712
OFF
AFC
ON
PG701
AFS 2
AFS 1
PB 12V
GND
VT
DEF
To TUNER/IF PG752
PG711
40V
GND
CLOCK
-24V
17V
To RECTIFIER PG1551
PG708
GND
CLOCK
-24V
17V
To TIMER PG108
D721 1S2076A
R718 10K
R720 22K
R719 22K
Q712 2SC2021RS
C711 100P
D712 1S2076
Q722 2SC2021RS
C724 0.0022
R737 68K
R736 47K
C723 1/50
C731 0.0022
R738 22K
D722 1SS133
Q724 2SA673A
R748 47K
C725 1/50
D723 1SS133
R733 22K
R734 3.3K
R735 3.3K
C721 1/50
R713 10K
R712 100K
D713 1SS133
Q735 2SC2320
R706 22
R707 1K
C738 220/16
C740 0.022
C741 0.022
ZD722 HZ-11B
C737 33/50
C739 0.022
1W 2W SUN MON TUE WED THU FR
ON
OFF
PG108
GND
CLOCK
-24V
17V
To PROGRAMME PG708
R115 2.2K
D126 V06C
C110 220/35
R114 100K
R118 22K
Q114 2SC2320
R1113 22
C112 0.022
R116 1K
C111 470/25
C113 0.022
ZD105 HZ-11B2
C114 100/16
C115 220/16
D128 1S2473
C116 0.022
R126 1K
ZD104 HZ-15
ZD102 HZ-11C
R1105 10K
R1106 4.7K
C107 100/35
R1112 56
R1104 22K
R1102 68K
Q112 2SC2021RS
C105 33/50
R1111 10K
Q111 2SC2021RS
R1103 22K
R1124 4.7K
R1133 220K
R1135 220K
R132 4.7K
R135 220K
D117 1S2076
D115 1S2076
D114 1S2076
SW1 SW2 SW3 SW4
D116 1S2076
CH-UP S115
S116 CH-DOWN
IC102 HD14066B
PG106
CH UP
CH DOWN
GND
To REMOTO CONTROL PG1402
R1107 10K
R125 4.7K
R1108 22K
Q113 2SC2021RS
C124 0.033
C126 0.47/50
C106 0.01
R124 10K
D137 1SS133
PG112
REC PAUSE
9.5V
TIM STB
To OPERATION SWITCH PG2015
PG101
CH DOWN
SAFETY
GND
CH UP
TIM ON
MEMORY
REVERSE
REEL SENSOR
To SYSTEM CONTROL PG431
R130 4.7K
R122 4.7K
R131 220K
R129 220K
12H
FF S117
D121 1S2076
S114 IRT
D120 1S2076
D118 1S2076
D119 1S2076
S118 RESET
ZD101 HZ-7B3L
R106 10K
R107 10K
C101 1/50
R105 100K
Q101 2SC2021RS
R1121 1K
R101 220K
R102 220K
R103 220K
IC101 M58839-606P
R1101 4.7K
R1100 4.7K
C103 100P
C104 100P
X101
R1100 820
D8 CHANNEL UP
D7 16CH
D6 (7G)
D5 (6G)
D4 (5G)
D3 (4G)
D2 (3G)
D1 (2G)
D0 (1G)
OSC IN
OSC OUT
S7(P(h))
S6(P(g))
S5(P(f))
S4(P(e))
S3(P(d))
S2(P(c))
S1(P(b))
S0(P(a))
Vp
VDD
D9 POWER FAIL
D10 CLOCK
RESET
K0 MATRIX 0
K1 MATRIX 1
K2 MATRIX 2
K3 MATRIX 3
G0
G1 TIMER ON
G2 MEMORY OUT
G3 TIMER LED
U
F0 COUNTER REV
F1 REC/PAUSE
F2 POWER
F3
REEL LOCK
TEST
Vss
50/60Hz
C127 1/50
R148 220K
R149 220K
R108 220K
R109 220K
R110 220K
R127 220K
R111 1K
R113 4.7K
R112 220K
C102 3.3/50
R114 4.7K
R115 4.7K
R116 4.7K
R117 4.7K
R114 220K
R120 220K
C121 3.3/50
D123 1S2473
R121 22K
R118 220K
R122 22K
R123 4.7K
DIM
COUNT RESET
MEMORY
COUNT/CLOCK
BRT S110
S111 S112 S113
D110 1S2076
D111 1S2076
D112 1S2076
D113 1S2076
D124 1SS133
R122 4.7K
Q104 2SC2021RS
R123 22K
C123 22/16
PG110 CN110
D0 D1 D2 K0 K1 K2 K3
TIMER P.C.B
10V
17V
9.5V
A B C D E F G H
1 2 3 4 5 6 7 8 9 10 11 12 13 14

X VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


PROGRAMME P.C.B
TIMER P.C.B
KEY P.C.B
Q728 2SC1213A
R747 100K
R746 22K
C729 0.01
C735 0.022
ZD721 µPC574J
C734 47/50
R717 12K
R716 120
Q733 2SA673A
R715 1K
C736 47/50
S712
OFF
AFC
ON
PG701
1 AFS 2
2 AFS 1
3 PB 12V
4 GND
5 VT
6 —
7 —
8 —
9 DEF
To TUNER/IF PG752
PG711
1 40V
2 GND
3 CLOCK
4 −24V
5 17V
To RECTIFIER PG1551
PG708
1 GND
2 CLOCK
3 −24V
4 17V
To TIMER PG108
17V
Q735 2SC2320
R706 22
R707 1K
C739 0.022
C737 3.3/50
C741 0.022
C740 0.022
C738 220/16
ZD722 HZ-11B
D721 1S2076A
R718 10K
R720 22K
R719 22K
Q712 2SC2021RS
R737 68K
C723 1/50
C731 0.0022
R738 22K
D722 1SS133
Q724 2SA673A
R736 47K
R748 47K
C725 1/50
C721 1/50
Q722 2SC2021RS
D723 1SS133
R733 22K
R734 3.3K
R735 3.3K
C724 0.0022
R713 10K
R712 100K
D713 1SS133
C711 100P
D712 1S2076
8CH
PG703
1 GND
2 CH UP
3 16 CH
4 —
CN703
1/W 2W SUN MON TUE WED THU FRI SAT
ON
OFF
PF
MEM
IRT
CH
C103 100P
C104 100P
X101
R100 820
R1101 4.7K
R1100 4.7K
IC101 M58839-606P
D8 CHANNEL UP
D7 16CH
D6 (7G)
D5 (6G)
D4 (5G)
D3 (4G)
D2 (3G)
D1 (2G)
D0 (1G)
OSC IN
OSC OUT
S7(Ph)
S6(Pg)
S5(Pf)
S4(Pe)
S3(Pd)
S2(Pc)
S1(Pb)
S0(Pa)
VP
VDD
D9 POWER FAIL
D10 CLOCK
RESET
K0 MATRIX 0
K1 MATRIX 1
K2 MATRIX 2
K3 MATRIX 3
G0
G1 TIMER ON
G2 MEMORY OUT
G3 TIMER LED
U
F0 COUNTER REV
F1 REC/PAUSE
F2 POWER
F3
REEL LOCK
TEST
VSS
50/60Hz
C127 1/50
DIM
COUNT RESET
MEMORY
COUNT/CLOCK
BRT S110
S111
S112
S113
D110 1S2076
D111 1S2076
D112 1S2076
D113 1S2076
R1111 10K
R124 4.7K
Q111 2SC2021RS
10V
D117 1S2076
R1103 22K
R133 220K
R135 220K
D115 1S2076
D114 1S2076
12H
FF S117
D121 1S2076
S114 IRT
D120 1S2076
D119 1S2076
D118 1S2076
D116 1S2076
CH-UP S115
S116 CH-DOWN
SW1
SW2
SW3
IC102 HD14066B
R129 220K
S118 RESET
R1121 1K
ZD101 HZ-7B3L
R106 10K
R107 10K
C101 1/50
R105 100K
Q101 2SC2021RS
R101 220K
R102 220K
R103 220K
R148 220K
R149 220K
R108 220K
R109 220K
R110 220K
R127 220K
R111 1K
R113 4.7K
R112 220K
C102 3.3/50
R114 4.7K
R115 4.7K
R116 4.7K
R117 4.7K
R119 220K
R120 220K
C121 3.3/50
D123 1S2473
9.5V
R121 22K
R118 220K
R122 22K
R123 4.7K
D124 1SS133
R122 4.7K
R123 22K
C123 22/16
Q104 2SC2021RS
PG110 CN110
1 D0
2 D1
3 D2
4 K0
5 K1
6 K2
7 K3
S1109 ▽ MIN
S1108 △ MIN
S1107 ▽ HR
S1106 △ HR
S1104 △ DAY
S1103 ON/OFF
S1102 PRO. NO
D1109 1S2076A
D1108 1S2076A
D1107 1S2076A
D1106 1S2076A
D1104 1S2076A
D1103 1S2076A
D1102 1S2076A
D1101 1S2076A
S1101
PROGRAM NORMAL CLOCK

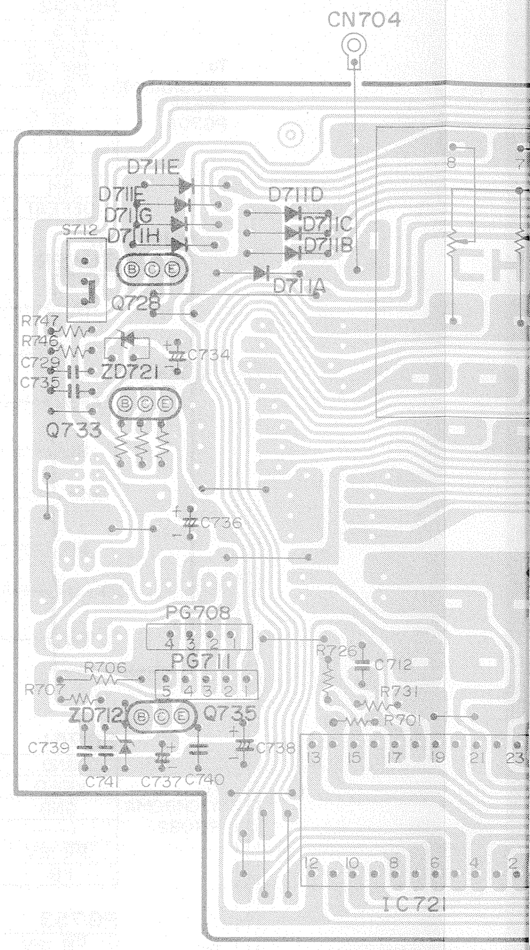
※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

7 8 9 10 11 12 13 14 15 16 17 18 19


D117
S115 CH-UP
YEL
D114
D115
R131
IC102
D116
R129
S116 CH-DOWN
C114
R1113
D128
R133
D126
R1116
R135
R134
Q114
ZD104
R132
S114 IRT
C113
C112
C110
ZD105
YEL
R1114
R1126
PG106
R1115
C111
PG108
ORN
35 33 31 28 26 24 22 20 18 14 11 8 5 1
C103
R100
C104
X101
IC101
593596
C127
R121 BRN
R1121
R117
C123
Q104
S118 RESET
R148
R120
R118
R115
R122
PG110
R130
R147
R109
R110
R108
R119
R111
R113
PG101
ORN
D123
R123
R116
D121
D120
D118
D119
R1101
R1100
D112
D111
D124
S111 COUNT.RESET
R1122
R1123
S117 F.F
D113
S112 MEMORY
S113 COUNT/CLOCK
RED
R114
R127
Q112
CN703
D110
BRN
S110
D131
R103
R105
R101
R1125 DIM
R1104
R1107
R124
R1105
Q113
BRT
R1118
R102
R1106
D137
R1109
ZD101
Q101
C121
R128
C102
Q111
R1124
C124
RED
R112
ZD102
C115
C116
C107
R1112
R106
R107
C101
R1103
C105
PG112

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

TIMER P.C.B


CN704
D711E
D711F
D711G
D711H
D711D
D711C
D711B
D711A
S712
Q728
R747
R746
C729
C735
ZD721
C734
Q733
C736
PG708
PG711
R706
R707
R726
C712
R731
R701
ZD712
Q735
C738
C739
C741
C737
C740
IC721

※VOLTAGES ARE MEAS
VOLTAGES IN ( ) ARE

IC 721

13	14	15	16	17	18	19	20
10.1	10.2	2.9	2.7	0.5	0	1.1	0
12	11	10	9	8	7	6	5
0	31.3	31.3	31.3	31.3	31.3	31.3	1.1

PG106

1	CH UP
2	CH DOWN
3	GND

To
REMOTO CONTROL
PG1402

PG108

1	GND
2	CLOCK
3	-24V
4	17V

To
PROGRAMME
PRESET
PG708

PG110

1	D 0
2	D 1
3	D 2
4	K 0
5	K 1
6	K 2
7	K 3

To
KEY
CN110

PG101

1	CH DOWN
2	SAFETY
3	GND
4	CH UP
5	TIM. ON
6	MEMORY
7	REVERSE
8	REEL SENSOR

To
SYSTEM CONTROL
PG931

PG112

1	—
2	REC. PAUSE
3	9.5V
4	TIM. STB

To
OPERATION SWITCH
PG2015

CN703

1	GND
2	CH UP
3	16 CH
4	—

To
PROGRAMM
PRESET
PG703

Q114

B	10.6(10.6)
C	19.1(19.1)
E	10.0(10.0)

Q104

B	0 (0)
C	0 (9.2)
E	0 (0)

Q101

B	0.5(0.5)
C	0 (0)
E	0 (0)

Q111

B	0 (0)
C	8.8(8.8)
E	0 (0)

Q112

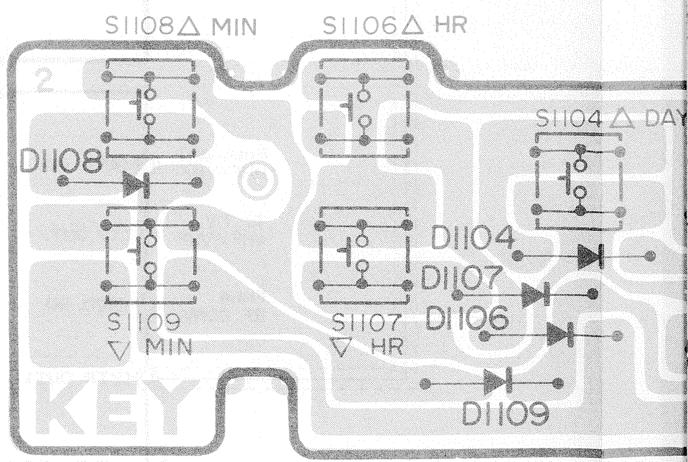
B	0 (0)
C	0 (0)
E	0.5(0.5)

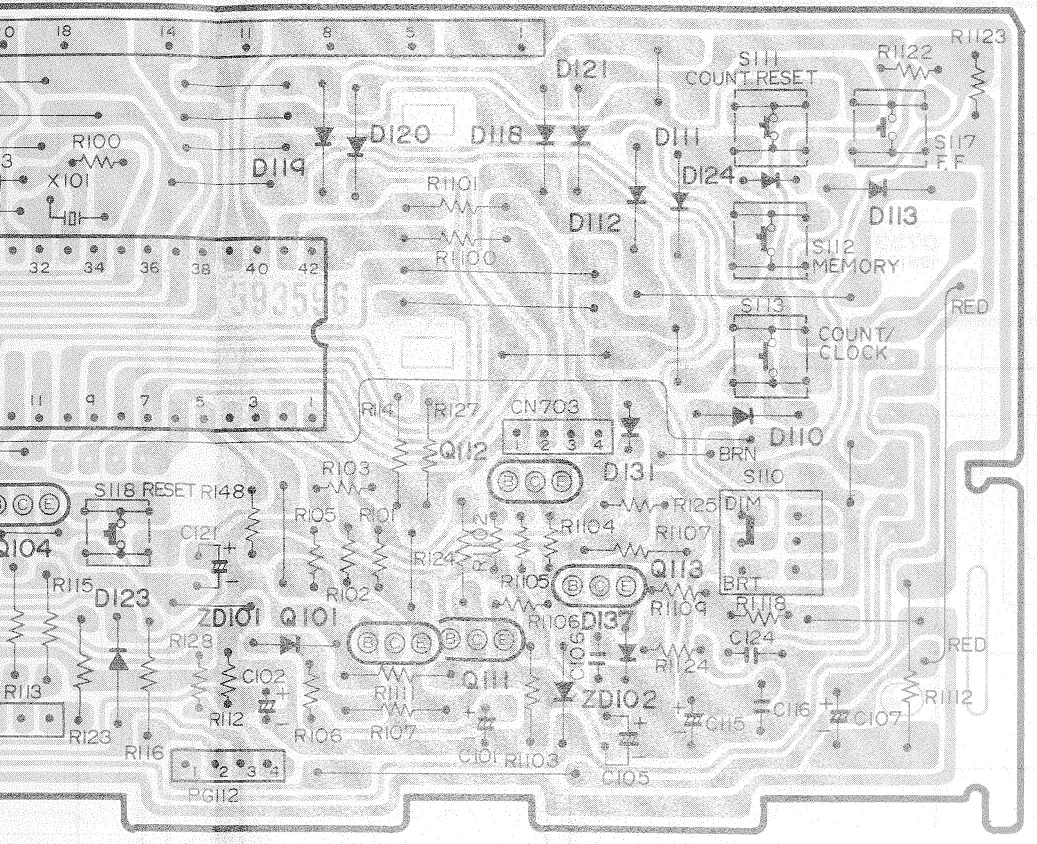
Q113

B	0.5(0.5)
C	5.4(5.4)
E	0.1 (0.1)

IC101

1	8.6(8.6)	15	0.1 (0.1)	29	-17.5(-17.5)
2	5.3(5.3)	16	0 (9.2)	30	-21.2(-21.2)
3	0.1 (0.1)	17	9.1 (9.1)	31	-21.2(-21.2)
4	0.1 (0.1)	18	9.2(9.2)	32	5.7(5.7)
5	0.1 (0.1)	19	4.8(4.8)	33	4.9(4.9)
6	1.0 (1.0)	20	9.2 (9.2)	34	-17.4(-17.4)
7	1.0 (1.0)	21	9.2 (9.2)	35	-17.4(-17.4)
8	1.0 (1.0)	22	0 (0)	36	-17.5(-17.5)
9	1.0 (1.0)	23	-21.5(-21.5)	37	-17.3(-17.3)
10	0.1 (0.1)	24	-9.4(-9.4)	38	-17.4(-17.4)
11	0.1 (0.1)	25	-2.0(-2.0)	39	-17.4(-17.4)
12	0.1 (0.1)	26	-5.5(-5.5)	40	-17.4(-17.4)
13	0.1 (0.1)	27	-13.2(-13.2)	41	0.6(0.6)
14	-17.0(-17.0)	28	-13.4(-13.4)	42	9.1(9.1)


S1108△ MIN
S1106△ HR
S1104△ DAY
2
D1108
D1104
D1107
D1106
S1109 ▽ MIN
S1107 ▽ HR
D1109
KEY


18
14
11
8
5
1
D121
S111
COUNT.RESET
R1122
R1123
S117
F.F
R100
X101
D119
D120
D118
D111
D124
D113
R1101
R1100
D112
S112
MEMORY
32
34
36
38
40
42
593596
S113
COUNT/
CLOCK
RED
11
9
7
5
3
1
R14
R127
CN703
Q112
D131
D110
BRN
S110
DIM
BRT
S118 RESET
R148
Q104
C121
R103
R105
R101
R1104
R125
R1107
Q113
R124
R1109
R115
D123
ZD101
Q101
R102
R1105
R1106
D137
R1118
C124
RED
R128
C102
Q111
C106
ZD102
R1124
R113
R112
R1111
R106
R107
C101
R1103
C105
C115
C116
C107
R1112
R123
R116
PG112

AND
D MODE.

TIMER P.C.B

CN703

1	GND
2	CH UP
3	16 CH
4	——

To
PROGRAMM
PRESET
PG703

Q114

B	10.6(10.6)
C	19.1(19.1)
E	10.0(10.0)

Q104

B	0 (0)
C	0 (9.2)
E	0 (0)

Q101

B	0.5(0.5)
C	0 (0)
E	0 (0)

Q111

B	0 (0)
C	8.8(8.8)
E	0 (0)

Q112

B	0 (0)
C	0 (0)
E	0.5(0.5)

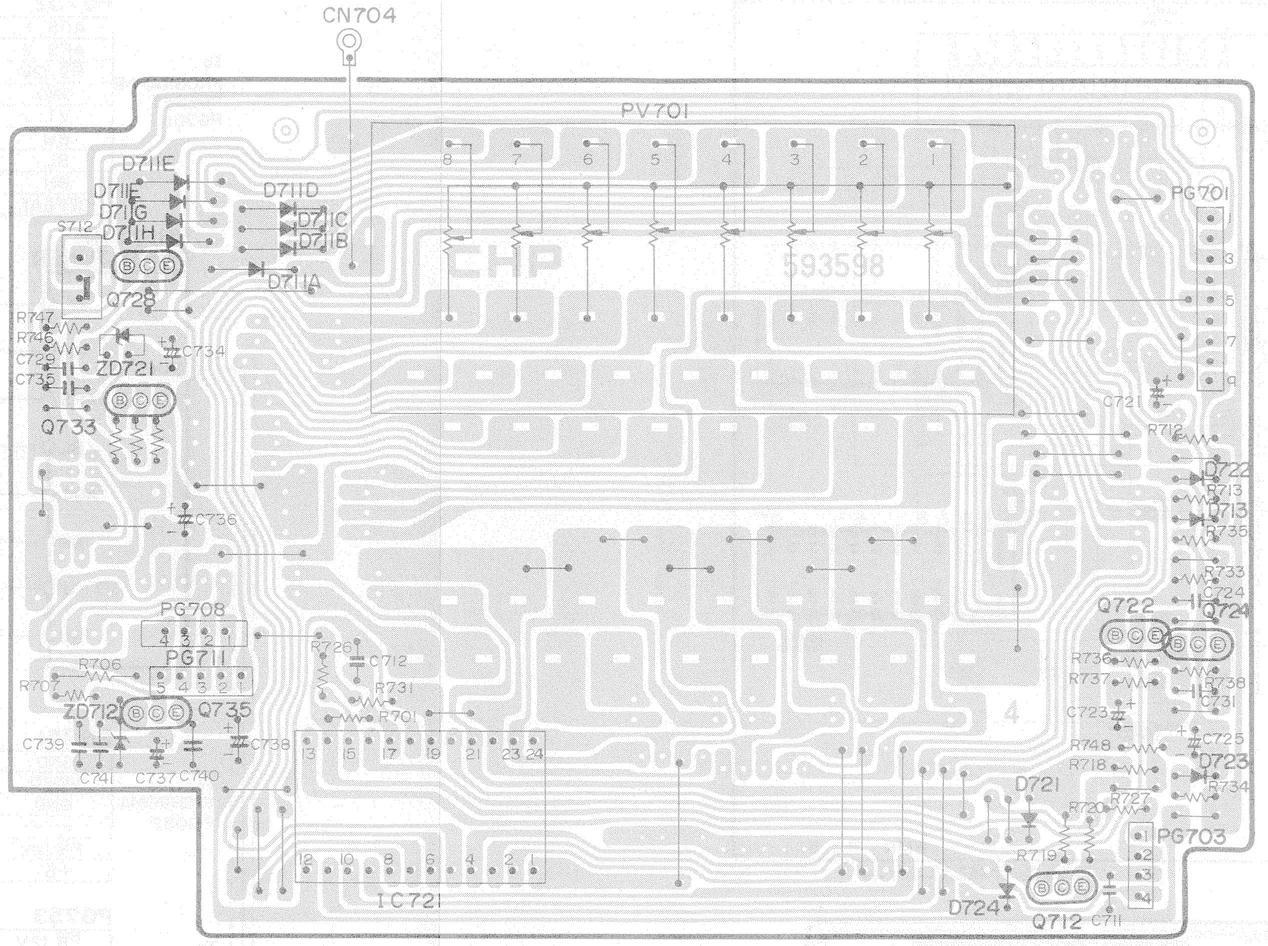
Q113

B	0.5(0.5)
C	5.4(5.4)
E	0.1 (0.1)

WITCH

IC101

1	8.6(8.6)	15	0.1 (0.1)	29	-17.5(-17.5)
2	5.3(5.3)	16	0 (9.2)	30	-21.2(-21.2)
3	0.1 (0.1)	17	9.1 (9.1)	31	-21.2(-21.2)
4	0.1 (0.1)	18	9.2(9.2)	32	5.7(5.7)
5	0.1 (0.1)	19	4.8(4.8)	33	4.9(4.9)
6	1.0 (1.0)	20	9.2 (9.2)	34	-17.4(-17.4)
7	1.0 (1.0)	21	9.2 (9.2)	35	-17.4(-17.4)
8	1.0 (1.0)	22	0 (0)	36	-17.5(-17.5)
9	1.0 (1.0)	23	-21.5(-21.5)	37	-17.3(-17.3)
10	0.1 (0.1)	24	-9.4(-9.4)	38	-17.4(-17.4)
11	0.1 (0.1)	25	-2.0(-2.0)	39	-17.4(-17.4)
12	0.1 (0.1)	26	-5.5(-5.5)	40	-17.4(-17.4)
13	0.1 (0.1)	27	-13.2(-13.2)	41	0.6(0.6)
14	-17.0(-17.0)	28	-13.4(-13.4)	42	9.1(9.1)


CN704
PV701
8
7
6
5
4
3
2
1
D711E
D711F
D711G
D711H
D711D
D711C
D711B
D711A
S712
Q728
CHP
593598
PG701
R747
R746
C729
C733
ZD721
C734
Q733
C736
Q721
R712
D722
R713
R735
R733
C724
Q722
Q724
PG708
PG711
R726
C712
R731
R701
R706
R707
ZD712
Q735
C739
C741
C737
C740
C738
R736
R737
R738
C731
C723
R748
R718
C725
D723
R734
D721
R720
R727
R719
PG703
D724
Q712
C711
IC721

※VOLTAGES ARE MEASURED IN PLAY MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

PROGRAMME PRESET P.C.B

IC721

13	14	15	16	17	18	19	20	21	22	23	24
10.1	10.2	2.9	2.7	0.5	0	1.1	0	7.1	1.1	1.1	1.1
12	11	10	9	8	7	6	5	4	3	2	1
0	31.3	31.3	31.3	31.3	31.3	31.3	1.1	31.3	1.1	1.1	1.1

Q722

B	0 (0)
C	10.0(10.0)
E	0 (0)

Q724

B	10.1(10.1)
C	0 (0)
E	10.1(10.1)

Q712

B	1.3(1.3)
C	0.6(0.6)
E	0.6(0.6)

Q728

B	17.0(17.0)
C	31.4(31.4)
E	16.4(16.4)

Q733

B	32.0(32.0)
C	13.4(13.4)
E	32.6(32.6)

Q735

B	10.8(10.8)
C	20.5(20.5)
E	10.2(10.2)

PG701

1	AFS 2
2	AFS 1
3	$\overline{\text{PB}}$ 12V
4	GND
5	VT
6	——
7	——
8	——
9	DEF

To
TUNER/IF
PG752

PG708

1	GND
2	CLOCK
3	-24V
4	17V

To
TIMER
PG108
VIA
CN108

PG711

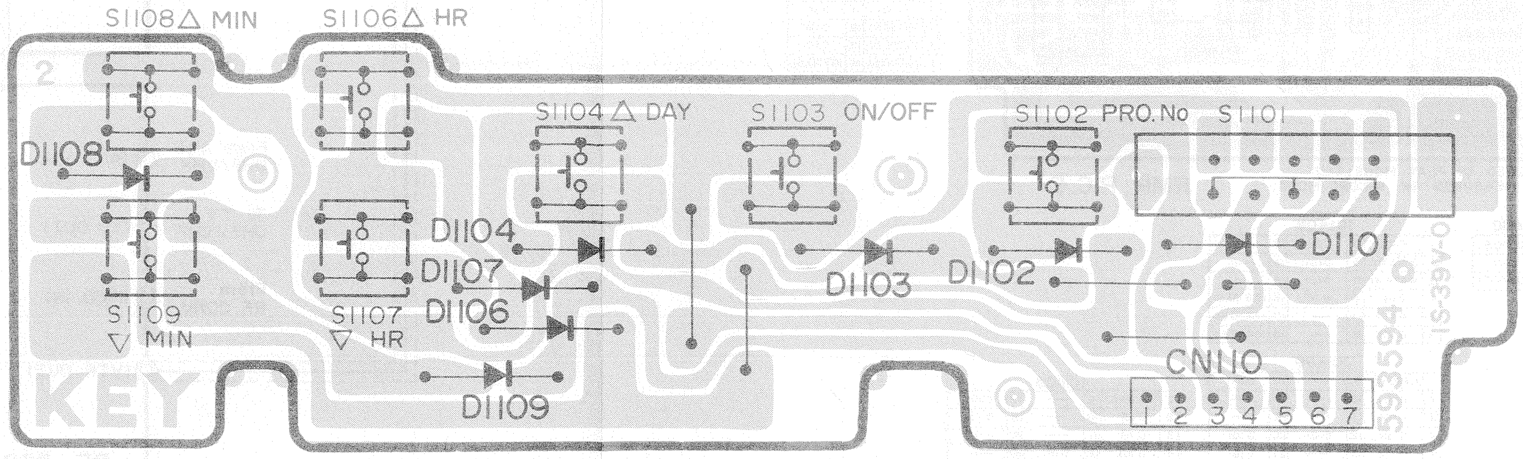
1	40V
2	GND
3	CLOCK
4	-24
5	17V

To
RECTIFIER
PG1551

PG703

1	GND
2	CH UP
3	16 CH
4	——

To
TIMER
CN703


S1108△ MIN
S1106△ HR
2
S1104△ DAY
S1103 ON/OFF
S1102 PRO.No
S1101
D1108
D1104
D1107
D1106
D1103
D1102
D1101
S1109
▽ MIN
S1107
▽ HR
D1109
CN110
1 2 3 4 5 6 7
KEY
593594
1S-39V-0

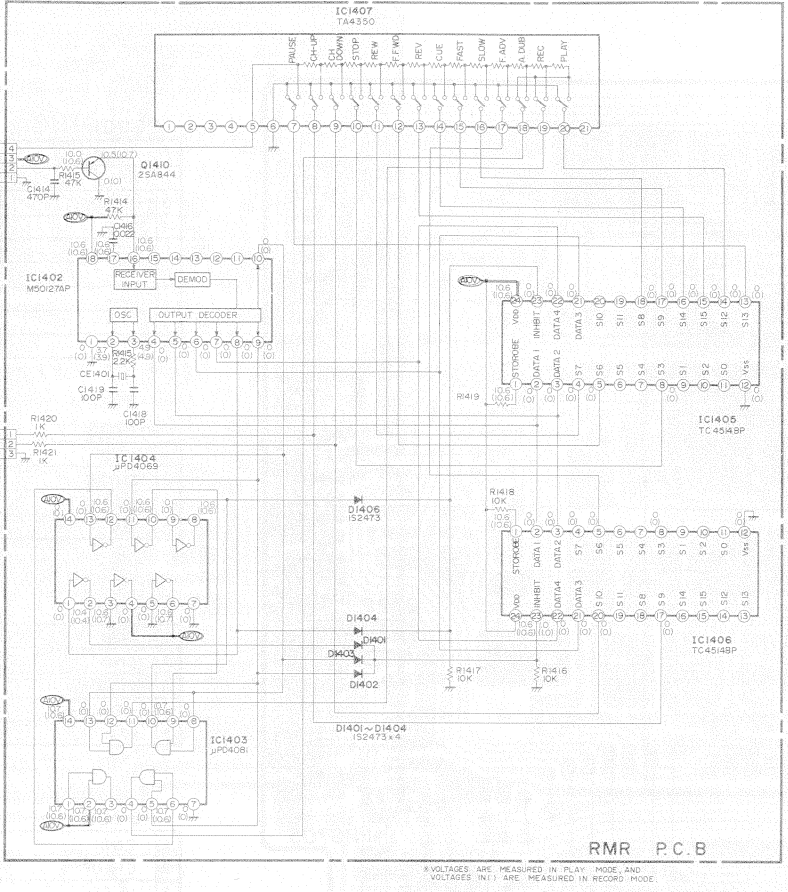
KEY P.C.B

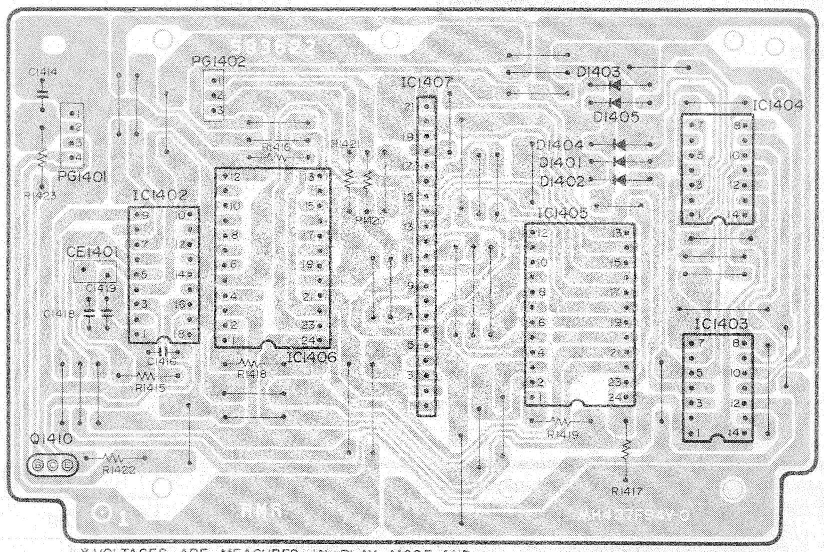
CN110

1	D0
2	D1
3	D2
4	K0
5	K1
6	K2
7	K3

To
TIMER
PG110

REMOTE CONTROL[For UK model only]


IC1407
TA4350
PAUSE
CH-UP
CH DOWN
STOP
REW
F.FWD
REV
CUE
FAST
SLOW
F.ADV
A.DUB
REC
PLAY
PG1401
MODE
A10V
PRE OUT
GND
To OPERATION SWITCH PG2018
Q1410
2SA844
R1415
47K
R1414
47K
C1414
470P
C1416
.0022
IC1402
M50127AP
RECEIVER INPUT
DEMOD
OSC
OUTPUT DECODER
CE1401
C1419
100P
C1418
100P
R1415
2.2K
PG1402
CH-UP
CH-DOWN
GND
To TIMER PG106
R1420
1K
R1421
1K
IC1404
μPD4069
D1406
1S2473
R1418
10K
IC1405
TC4514BP
IC1406
TC4514BP
R1419
STROBE
INHIBIT
DATA 1
DATA 2
DATA 3
DATA 4
VDD
Vss
D1401
D1402
D1403
D1404
R1417
10K
R1416
10K
IC1403
μPD4081
D1401~D1404
1S2473×4
RMR P.C.B
※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


593622
C1414
PG1402
PG1401
R1423
IC1407
D1403
D1405
IC1404
R1416
R1421
D1404
D1401
D1402
IC1402
R1420
IC1405
CE1401
C1419
C1418
C1416
R1415
R1418
IC1406
IC1403
R1419
Q1410
R1422
R1417
RMR
MH437F94V-0

※VOLTAGES ARE MEASURED IN PLAY MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

RMR P.C.B

IC1404

7	0 (0)	8	10.6(10.6)
6	10.6(10.7)	9	0 (0)
5	0 (0)	10	10.6(10.6)
4	0 (0)	11	0 (0)
3	10.6(10.7)	12	10.6(10.6)
2	10.4(10.4)	13	0 (0)
1	0 (0)	14	10.6(10.6)

IC1403

7	0 (0)	8	0 (0)
6	10.7(10.6)	9	10.7(10.6)
5	0 (0)	10	0 (0)
4	0 (0)	11	0 (0)
3	10.7(10.6)	12	0 (0)
2	10.7(10.6)	13	0 (0)
1	10.7(10.6)	14	10.7(10.6)

PG1401

1	GND
2	PRE OUT
3	A10V
4	MODE

To
OPERATION
SWITCH
PG2018

Q1410

B	10.0(10.6)
C	0 (0)
E	10.5(10.7)

IC1402

1	0 (0)	7	0 (0)	13	——
2	3.7(3.9)	8	0 (0)	14	——
3	4.9 (4.9)	9	0 (0)	15	——
4	0 (0)	10	0 (0)	16	10.6 (10.6)
5	0 (0)	11	——	17	10.6 (10.6)
6	0 (0)	12	——	18	10.6(10.6)

PG1402

1	CH-UP
2	CH-DOWN
3	GND

To
TIMER
PG106

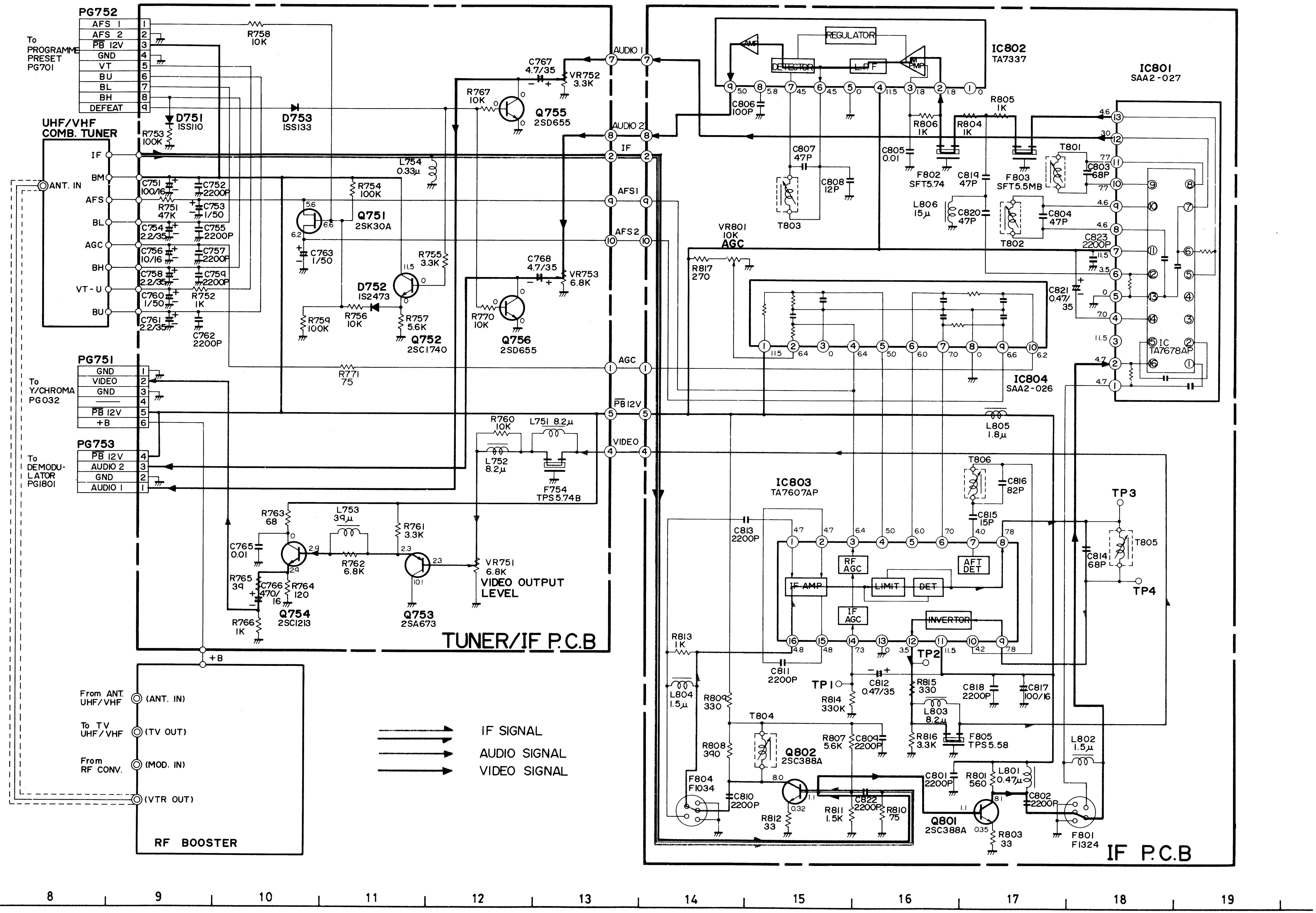
IC1406

1	10.6(10.6)	9	——	17	0 (0)
2	0 (0)	10	——	18	——
3	0 (0)	11	——	19	——
4	0 (0)	12	0 (0)	20	0 (0)
5	0 (0)	13	——	21	0 (0)
6	——	14	——	22	0 (0)
7	——	15	——	23	1.0 (1.0)
8	0 (0)	16	——	24	10.6 (10.6)

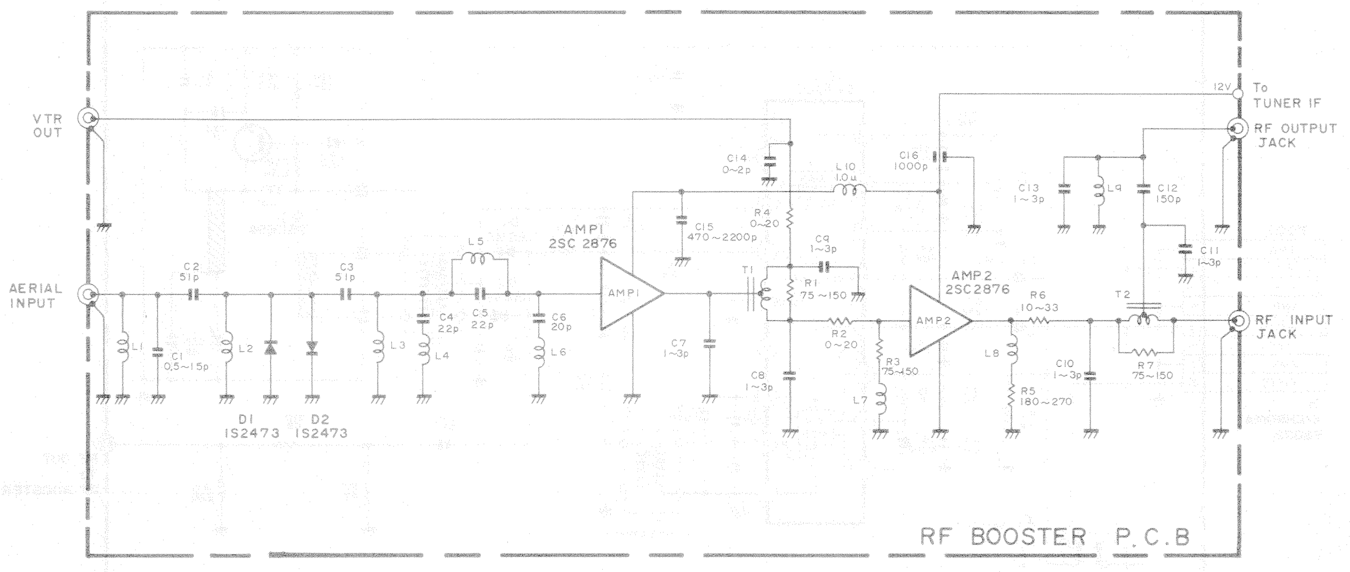
IC1405

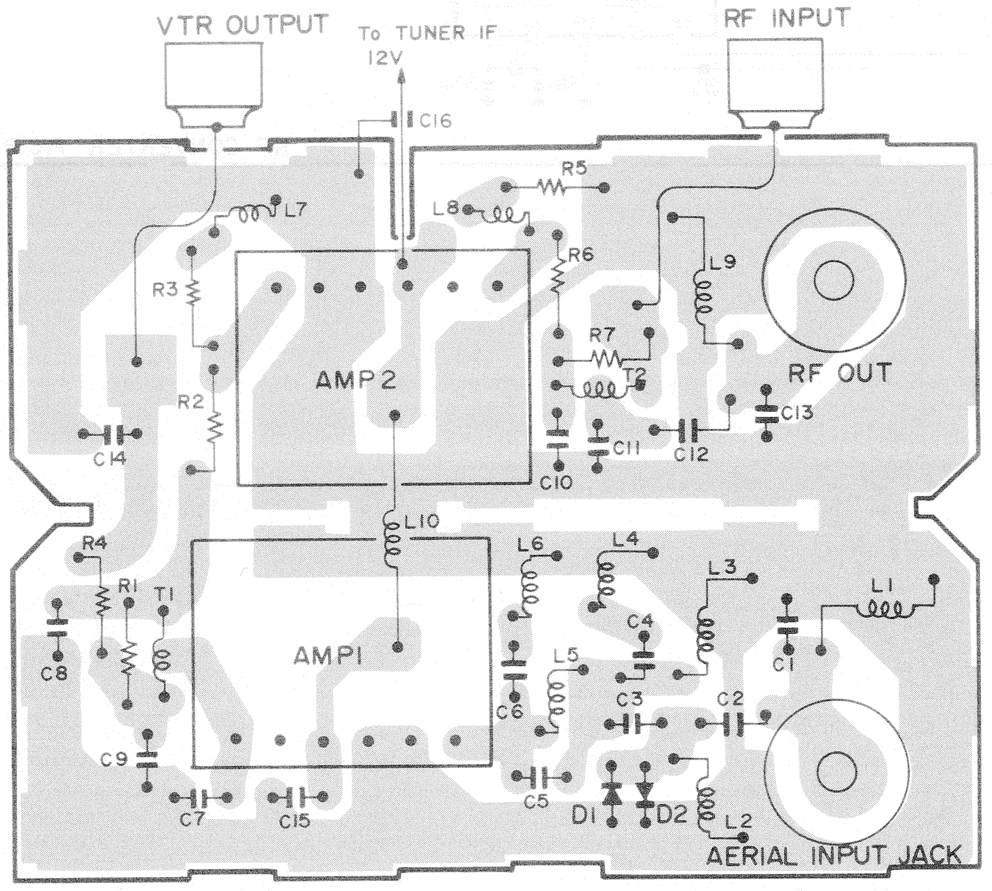
1	10.6 (10.6)	9	——	17	0 (0)
2	0 (0)	10	——	18	0 (0)
3	0 (0)	11	——	19	——
4	0 (0)	12	0 (0)	20	——
5	0 (0)	13	0 (0)	21	0 (0)
6	——	14	0 (0)	22	0 (0)
7	——	15	0 (0)	23	0 (0)
8	0 (0)	16	0 (0)	24	10.6 (10.6)

TUNER IF[Except for UK model]


PG752
AFS 1
AFS 2
PB 12V
GND
VT
BU
BL
BH
DEFEAT
To PROGRAMME PRESET PG701
UHF/VHF COMB. TUNER
ANT. IN
IF
BM
AFS
BL
AGC
BH
VT-U
BU
R758 10K
D751 1SS110
D753 1SS133
R753 100K
C751 100/16
C752 2200P
R751 47K
C753 1/50
C754 2.2/35
C755 2200P
C756 10/16
C757 2200P
C758 2.2/35
C759 2200P
C760 1/50
R752 1K
C761 2.2/35
C762 2200P
L754 0.33μ
R754 100K
Q751 2SK30A
C763 1/50
D752 1S2473
R755 3.3K
R756 10K
R759 100K
R757 5.6K
Q752 2SC1740
C767 4.7/35
VR752 3.3K
R767 10K
Q755 2SD655
C768 4.7/35
VR753 6.8K
R770 10K
Q756 2SD655
R771 75
PG751
GND
VIDEO
GND
PB 12V
+B
To Y/CHROMA PG032
PG753
PB 12V
AUDIO 2
GND
AUDIO 1
To DEMODULATOR PG1801
R760 10K
L751 8.2μ
L752 8.2μ
F754 TPS5.74B
R763 68
L753 39μ
R761 3.3K
C765 0.01
R762 6.8K
R765 39
C766 470/16
R764 120
Q754 2SC1213
Q753 2SA673
R766 1K
VR751 6.8K VIDEO OUTPUT LEVEL
TUNER/IF P.C.B
+B
From ANT. UHF/VHF (ANT. IN)
To TV UHF/VHF (TV OUT)
From RF CONV. (MOD. IN)
(VTR OUT)
RF BOOSTER
IF SIGNAL
AUDIO SIGNAL
VIDEO SIGNAL
AUDIO 1
AUDIO 2
IF
AFS1
AFS2
AGC
PB12V
VIDEO
IC802 TA7337
REGULATOR
AMP
DETECTOR
LPF
LIM AMP
C806 100P
C807 47P
C808 12P
T803
R806 1K
R804 1K
R805 1K
C805 0.01
F802 SFT5.74
C819 47P
F803 SFT5.5MB
L806 15μ
C820 47P
T801
C803 68P
C804 47P
T802
IC801 SAA2-027
VR801 10K AGC
R817 270
C823 2200P
C821 0.47/35
IC TA7678AP
IC804 SAA2-026
L805 1.8μ
T806
C816 82P
C815 15P
IC803 TA7607AP
C813 2200P
RF AGC
AFT DET
IF AMP
LIMIT
DET
IF AGC
INVERTOR
TP3
T805
C814 68P
TP4
R813 1K
C811 2200P
TP1
C812 0.47/35
R815 330
TP2
C818 2200P
C817 100/16
L804 1.5μ
R809 330
R814 330K
L803 8.2μ
T804
R807 5.6K
C809 2200P
R816 3.3K
F805 TPS5.58
R808 390
Q802 2SC388A
L802 1.5μ
F804 F1034
C810 2200P
R812 33
R811 1.5K
C822 2200P
R810 75
C801 2200P
R801 560
L801 0.47μ
C802 2200P
Q801 2SC388A
R803 33
F801 F1324
IF P.C.B
7
8
9
10
11
12
13
14
15
16
17
18
19

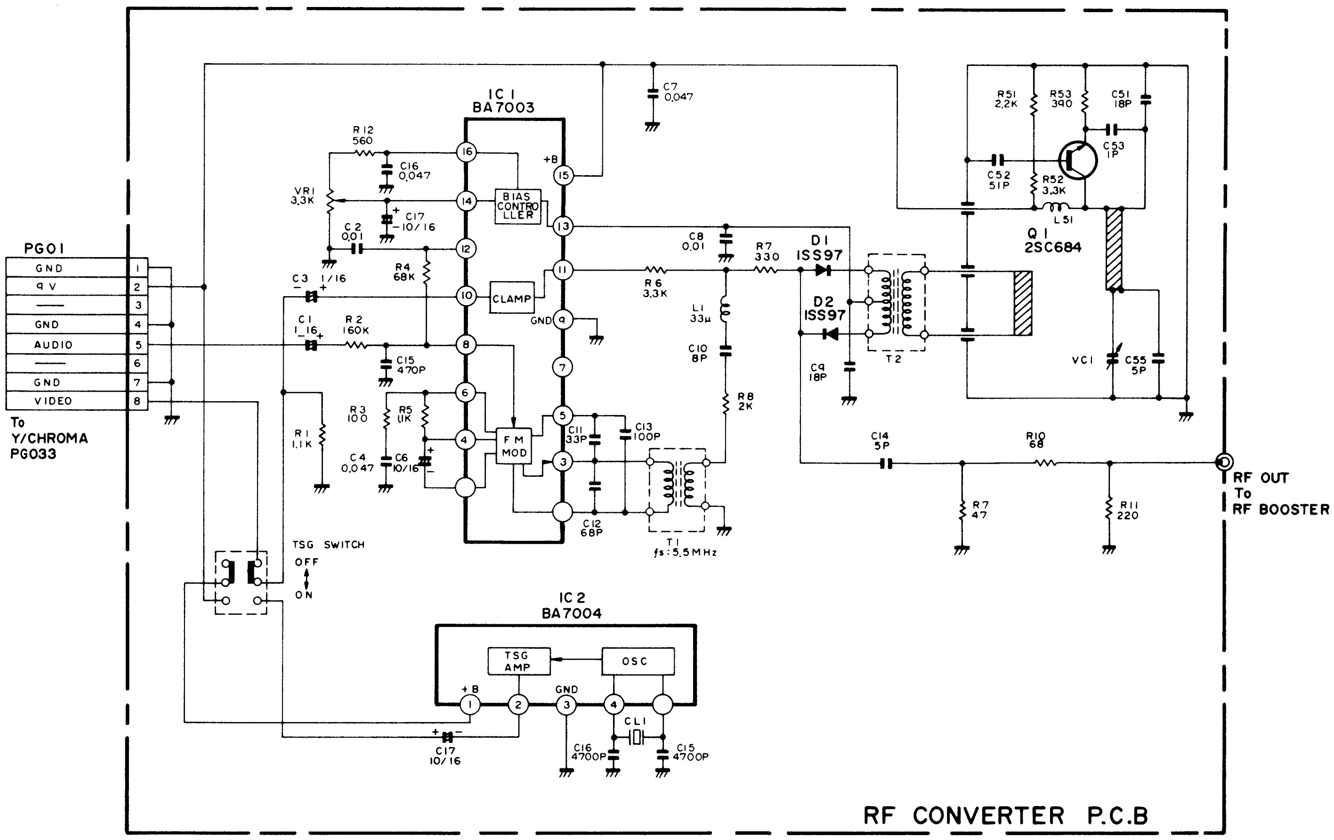
RF BOOSTER[Except for UK model]


VTR OUT
AERIAL INPUT
C2 51p
C3 51p
L5
C5 22p
C4 22p
C6 20p
L1
C1 0.5~15p
L2
L3
L4
L6
D1 1S2473
D2 1S2473
AMP1 2SC 2876
AMP1
C14 0~2p
C15 470~2200p
R4 0~20
L10 1.0u
C9 1~3p
T1
R1 75~150
R2 0~20
C7 1~3p
C8 1~3p
R3 75~450
L7
C16 1000p
AMP2 2SC2876
AMP2
R6 10~33
L8
R5 180~270
C10 1~3p
C13 1~3p
L9
C12 150p
C11 1~3p
T2
R7 75~150
12V
To TUNER IF
RF OUTPUT JACK
RF INPUT JACK
RF BOOSTER P.C.B

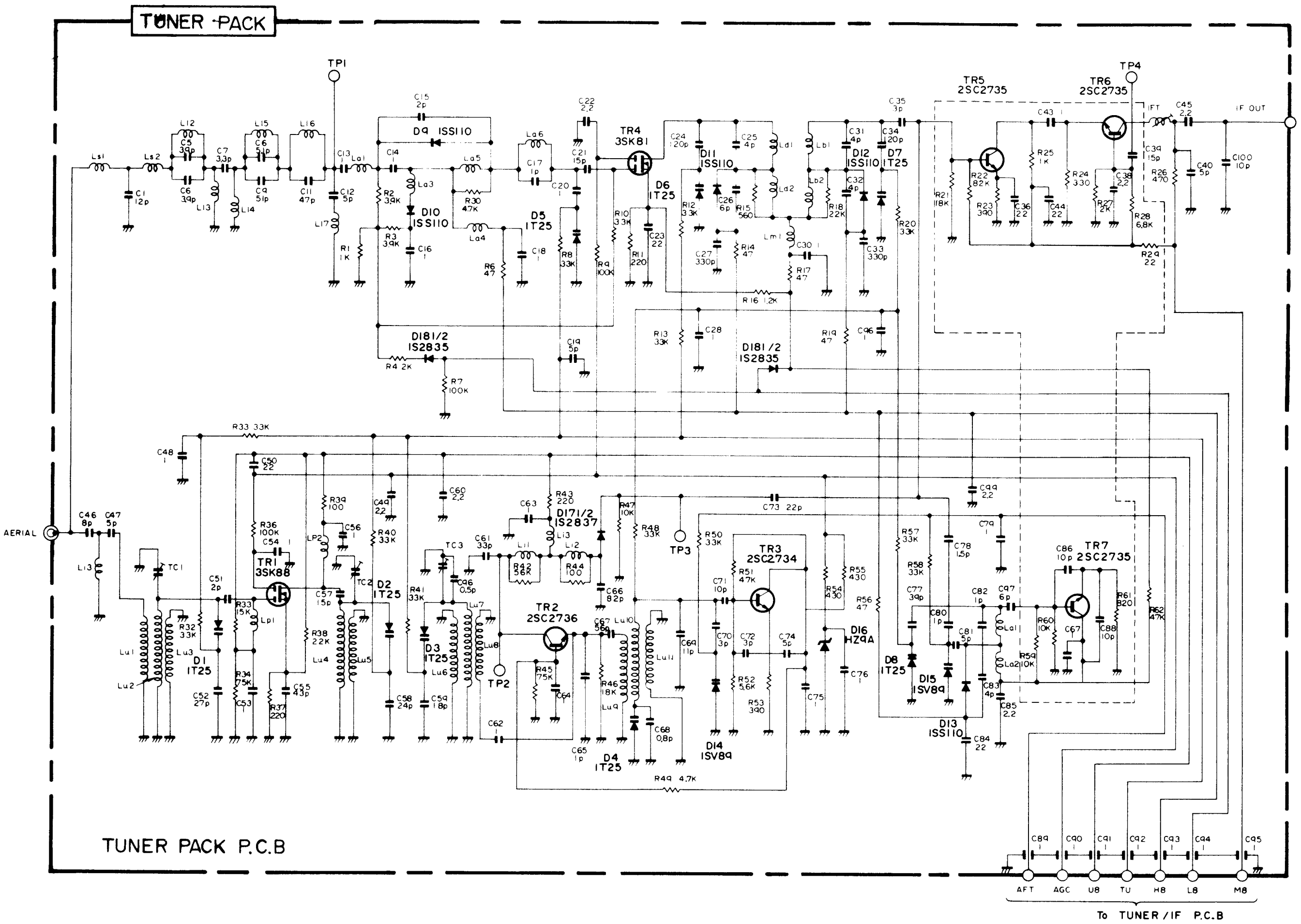

VTR OUTPUT
To TUNER IF 12V
C16
RF INPUT
R5
L7
L8
R6
L9
R3
AMP2
R7
T2
RF OUT
C13
R2
C14
C10
C11
C12
L10
R4
L6
L4
L3
R1
T1
L1
C8
AMP1
C4
C1
L5
C6
C3
C2
C9
C5
D1
D2
L2
C7
C15
AERIAL INPUT JACK

RF BOOSTER P.C.B

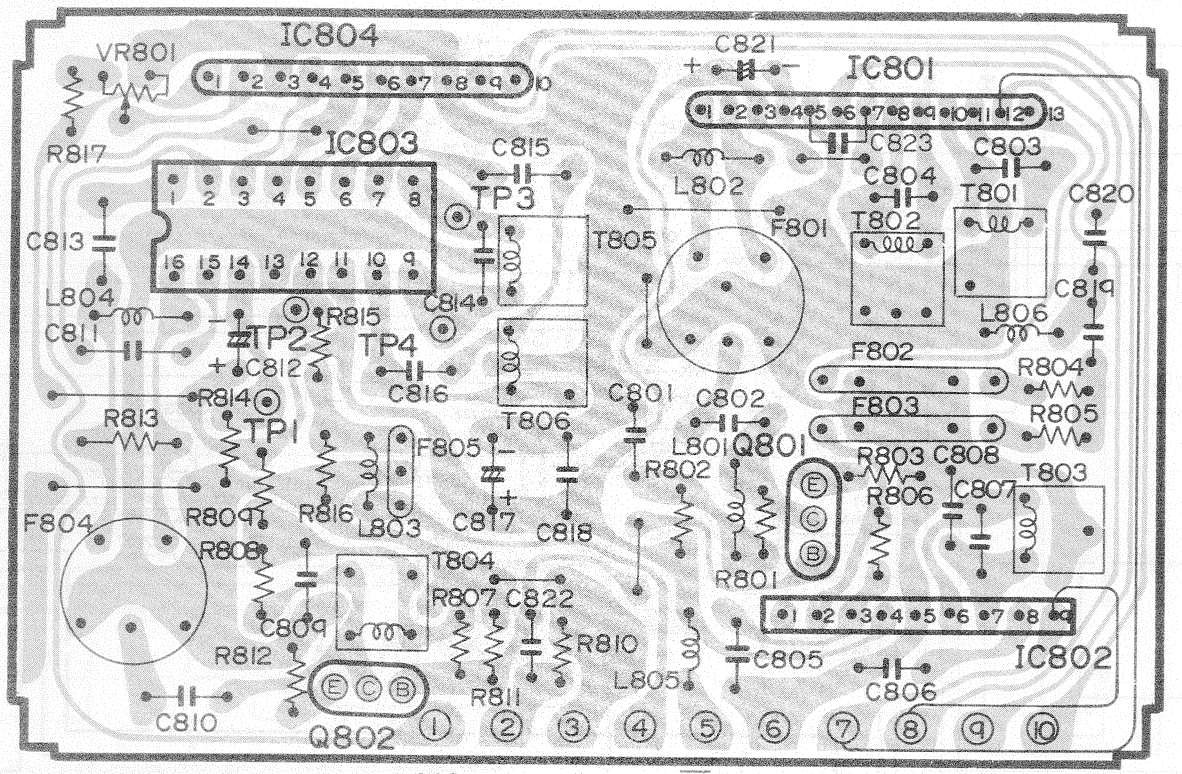
RF CONVERTER[Except for UK model]


IC 1
BA7003
+B
BIAS CONTROLLER
CLAMP
GND
FM MOD
R12 560
C16 0,047
VR1 3,3K
C17 10/16
C2 0,01
R4 68K
C3 1/16
C1 1/16
R2 160K
C15 470P
R1 1,1K
R3 100
R5 1K
C4 0,047
C6 10/16
C11 33P
C13 100P
C12 68P
T1 fs : 5,5MHz
C7 0,047
C8 0,01
R6 3,3K
R7 330
D1 ISS97
D2 ISS97
L1 33μ
C10 8P
R8 2K
C9 18P
T2
R51 2,2K
R53 390
C51 18P
C53 1P
C52 51P
R52 3,3K
L51
Q1 2SC684
VC1
C55 5P
C14 5P
R10 68
R7 47
R11 220
RF OUT
To RF BOOSTER
PG01
GND
9V
GND
AUDIO
GND
VIDEO
To Y/CHROMA PG033
TSG SWITCH
OFF
ON
IC 2
BA7004
TSG AMP
OSC
+B
GND
CL1
C16 4700P
C15 4700P
C17 10/16
RF CONVERTER P.C.B

TUNER PACK[Except For UK model]


TUNER PACK
TP1
TP2
TP3
TP4
TR1 3SK88
TR2 2SC2736
TR3 2SC2734
TR4 3SK81
TR5 2SC2735
TR6 2SC2735
TR7 2SC2735
D1 1T25
D2 1T25
D3 1T25
D4 1T25
D5 1T25
D6 1T25
D7 1T25
D8 1T25
D9 1SS110
D10 1SS110
D11 1SS110
D12 1SS110
D13 1SS110
D14 1SV89
D15 1SV89
D16 HZ9A
D171/2 1S2837
D181/2 1S2835
AERIAL
IF OUT
IFT
TUNER PACK P.C.B
AFT
AGC
U8
TU
M8
L8
M8
To TUNER / IF P.C.B

IF[Except for UK model]


IC804
VR801
R817
IC803
C815
TP3
IC801
C821
C823
C803
C804
L802
T801
C820
T802
F801
T805
C813
L804
C811
TP2
R815
C812
TP4
C814
C816
C819
L806
F802
R804
F803
R805
R813
R814
TP1
T806
C801
C802
L801
Q801
R802
R803
C808
R806
C807
T803
F805
R816
L803
C817
C818
F804
R809
R808
T804
R807
C822
R801
C809
R812
R810
R811
L805
C805
C806
IC802
C810
Q802
AGC
IF
GND
VIDEO
PB12V
GND
AUDIO
DEFEAT
AFS1
AFS2
TUNER/IF P.C.B

IF PACK P.C.B

IC801

1	2	3	4	5	6	7	8	9	10	11	12	13
4.7	4.7	11.5	7.0	0	3.5	11.5	4.6	4.6	7.7	7.7	3.0	4.6

IC802

1	2	3	4	5	6	7	8	9
0	1.8	1.8	11.5	0	4.5	4.5	5.8	5.0

IC804

1	2	3	4	5	6	7	8	9	10
11.5	6.4	0	6.4	5.0	6.0	7.0	0	6.6	6.2

IC803

1	2	3	4	5	6	7	8
4.7	4.7	6.4	5.0	6.0	7.0	4.0	7.8
16	15	14	13	12	11	10	9
4.8	4.8	7.3	0	3.5	11.5	4.2	7.8

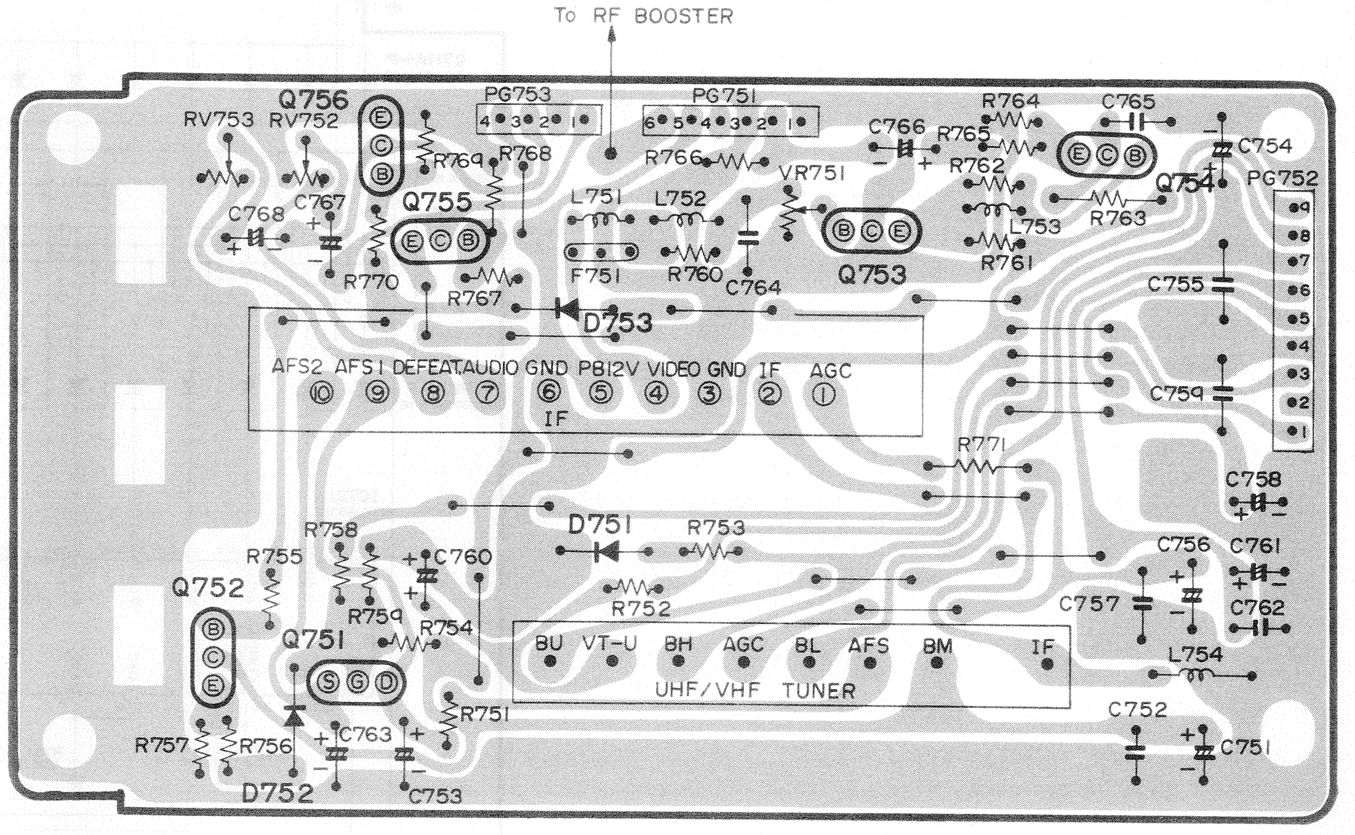
Q801

B	1.1
C	8.1
E	0.35

Q802

B	1.1
C	8.0
E	0.32

TUNER/IF[Except for UK model]


To RF BOOSTER
Q756
RV753
RV752
PG753
PG751
R764
C765
C754
R769
R768
R766
VR751
C766
R765
R762
Q754
PG752
C768
C767
Q755
L751
L752
R763
L753
R761
F751
R770
R767
R760
C764
Q753
C755
D753
AFS2
AFS1
DEFEAT
AUDIO
GND
PB12V
VIDEO
GND
IF
AGC
IF
C759
R771
C758
D751
R753
R758
R755
C760
C756
C761
Q752
R759
R752
C757
C762
Q751
R754
BU
VT-U
BH
AGC
BL
AFS
BM
IF
UHF/VHF TUNER
L754
R751
C752
C763
R757
R756
C751
D752
C753

TUNER/IF P.C.B

PG751

1	GND	To Y/CHROMA PG032
2	VIDEO	
3	GND	
4	—	
5	$\overline{\text{PB}}$ 12V	
6	BOOSTER	

PG752

1	AFS 1	To PROGRAMME PRESET PG701
2	AFS 2	
3	$\overline{\text{PB}}$ 12V	
4	GND	
5	VT	
6	BU	
7	BL	
8	BH	
9	DEFEAT	

PG753

1	AUDIO	To DEMODVLATOR PG1801
2	GND	
3	AUDIO	
4	$\overline{\text{PB}}$ 12V	

Q751

B	6.6
C	5.6
E	6.2

Q752

B	0
C	11.5
E	0

Q753

B	2.3
C	10.1
E	2.3

Q754

B	2.9
C	0
E	2.9

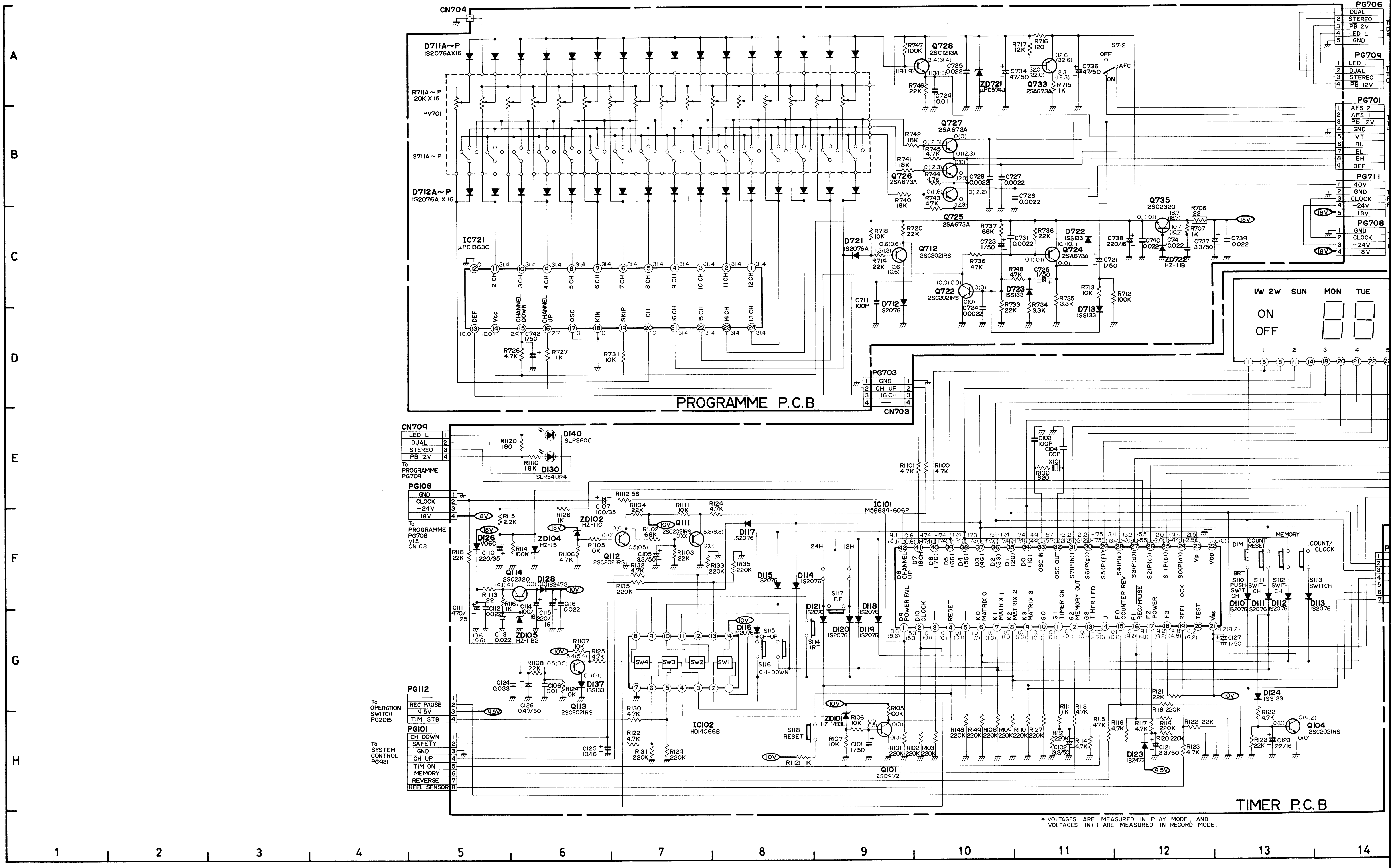
Q755

B	0
C	0
E	0

Q756

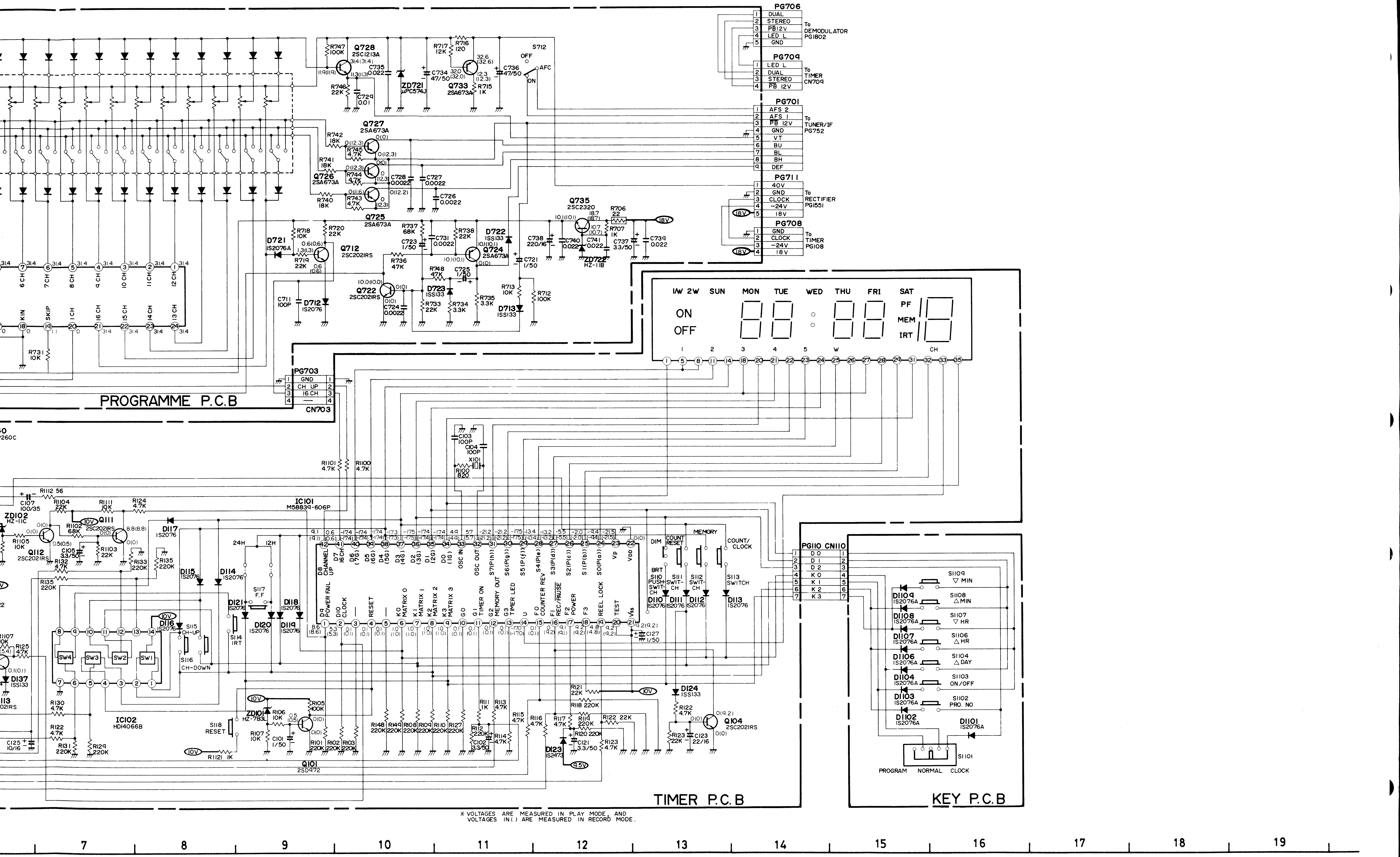
B	0
C	0
E	0

TIMER/PROGRAMME PRESET/KEY[Except for UK model]

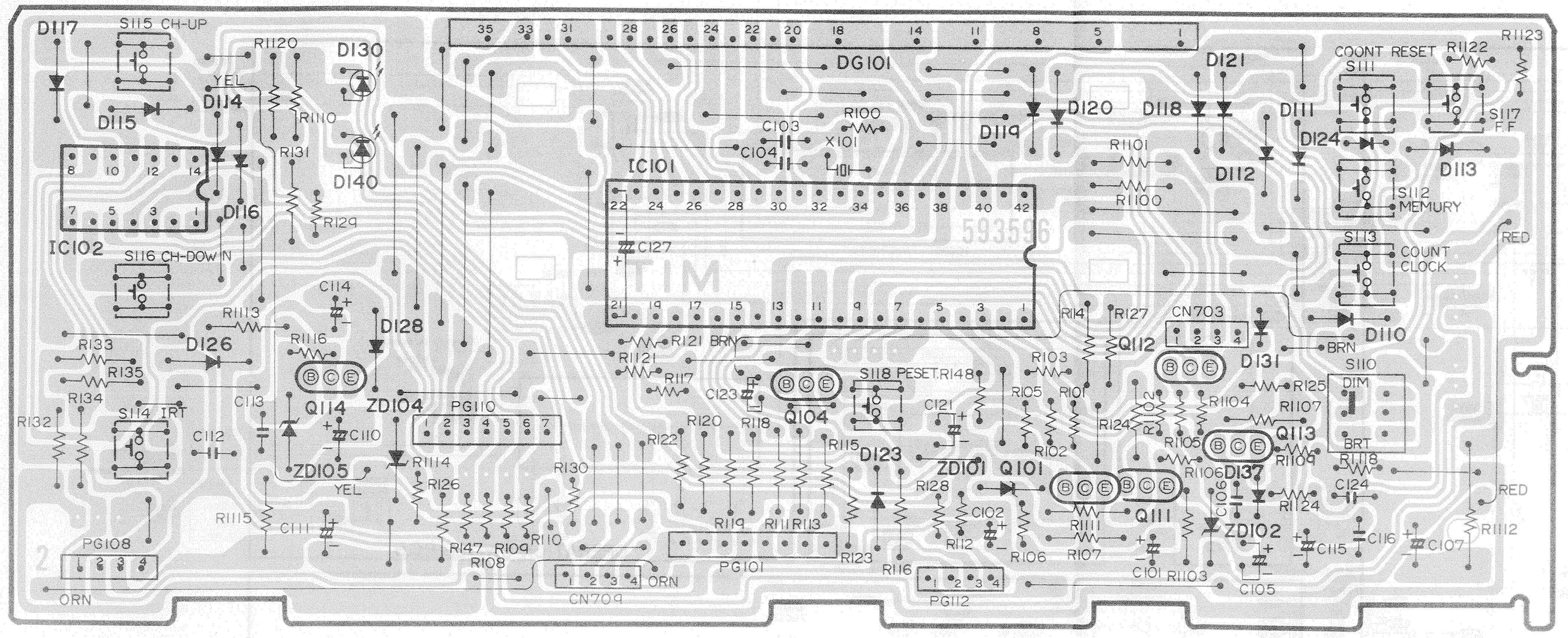


PROGRAMME P.C.B
TIMER P.C.B
CN704
D711A~P 1S2076AX16
R711A~P 20K X 16
PV701
S711A~P
D712A~P 1S2076A X 16
IC721 μPC1363C
2 CH
3 CH
4 CH
5 CH
6 CH
7 CH
8 CH
9 CH
10 CH
11 CH
12 CH
DEF
Vcc
CHANNEL DOWN
CHANNEL UP
OSC
K IN
SKIP
1 CH
16 CH
15 CH
14 CH
13 CH
Q728 2SC1213A
Q733 2SA673A
ZD721 μPC574J
S712
OFF
AFC
ON
Q727 2SA673A
Q726 2SA673A
Q725 2SA673A
D721 1S2076A
Q712 2SC2021RS
Q722 2SC2021RS
D712 1S2076
D723 1SS133
D722 1SS133
Q724 2SA673A
D713 1SS133
Q735 2SC2320
ZD722 HZ-11B
PG706
DUAL
STEREO
PB12V
LED L
GND
PG709
LED L
DUAL
STEREO
PB 12V
PG701
AFS 2
AFS 1
PB 12V
GND
VT
BU
BL
BH
DEF
PG711
40V
GND
CLOCK
-24V
18V
PG708
GND
CLOCK
-24V
18V
1/W 2W SUN MON TUE
ON
OFF
PG703
GND
CH UP
16 CH
CN703
CN709
LED L
DUAL
STEREO
PB 12V
To PROGRAMME PG709
D140 SLP260C
D130 SLR54UR4
PG108
GND
CLOCK
-24V
18V
To PROGRAMME PG708 VIA CN108
D126 V06C
ZD104 HZ-15
ZD102 HZ-11C
Q111 2SC2021RS
Q112 2SC2021RS
Q114 2SC2320
D128 1S2473
ZD105 HZ-11B2
Q113 2SC2021RS
D137 1SS133
D117 1S2076
D115 1S2076
D114 1S2076
D116 1S2076
S115 CH-UP
S116 CH-DOWN
SW4
SW3
SW2
SW1
IC102 HD14066B
IC101 M58839-606P
24H
12H
S117 F.F
D121 1S2076
D120 1S2076
D119 1S2076
D118 1S2076
S114 IRT
S118 RESET
ZD101 HZ-7B3L
Q101 2SD972
D8 CHANNEL UP
D7 16CH
D6 (7G)
D5 (6G)
D4 (5G)
D3 (4G)
D2 (3G)
D1 (2G)
D0 (1G)
OSC IN
OSC OUT
S7(P(h))
S6(P(g))
S5(P(f))
S4(P(e))
S3(P(d))
S2(P(c))
S1(P(b))
S0(P(a))
Vp
VDD
D9 POWER FAIL
D10 CLOCK
RESET
K0 MATRIX 0
K1 MATRIX 1
K2 MATRIX 2
K3 MATRIX 3
G0
G1 TIMER ON
G2 MEMORY OUT
G3 TIMER LED
U
F0 COUNTER REV
F1 REC/PAUSE
F2 POWER
F3
REEL LOCK
TEST
Vss
DIM
BRT
COUNT RESET
MEMORY
COUNT/CLOCK
S110 PUSH SWITCH
S111 SWIT-CH
S112 SWIT-CH
S113 SWITCH
D110 1S2076
D111 1S2076
D112 1S2076
D113 1S2076
D124 1SS133
Q104 2SC2021RS
D123 1S2473
X101
PG112
REC PAUSE
9.5V
TIM STB
To OPERATION SWITCH PG2015
PG101
CH DOWN
SAFETY
GND
CH UP
TIM ON
MEMORY
REVERSE
REEL SENSOR
To SYSTEM CONTROL PG931
10V
18V
9.5V
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
13
14

* VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


PROGRAMME P.C.B
TIMER P.C.B
KEY P.C.B
PG706
DUAL
STEREO
PB 12V
LED L
GND
To DEMODULATOR PG1802
PG709
LED L
DUAL
STEREO
PB 12V
To TIMER CN709
PG701
AFS 2
AFS 1
PB 12V
GND
VT
BU
BL
BH
DEF
To TUNER/IF PG752
PG711
40V
GND
CLOCK
-24V
18V
To RECTIFIER PG1551
PG708
GND
CLOCK
-24V
18V
To TIMER PG108
PG703
GND
CH UP
16 CH
CN703
S712
OFF
AFC
ON
Q728 2SC1213A
Q733 2SA673A
ZD721 μPC574J
Q727 2SA673A
Q726 2SA673A
Q725 2SA673A
Q712 2SC2021RS
Q722 2SC2021RS
Q724 2SA673A
Q735 2SC2320
ZD722 HZ-11B
D721 1S2076A
D712 1S2076
D722 1SS133
D723 1SS133
D713 1SS133
I/W 2W SUN MON TUE WED THU FRI SAT
ON
OFF
PF
MEM
IRT
IC101 M58839-606P
IC102 HD14066B
Q111 2SC2021RS
Q112 2SC2021RS
ZD102 HZ-11C
ZD101 HZ-7B3L
Q101 2SD972
Q104 2SC2021RS
D123 1S2473
X101
S114 IRT
S115 CH-UP
S116 CH-DOWN
S117 F.F
S118 RESET
S110 PUSH SWITCH
S111 SWITCH
S112 SWITCH
S113 SWITCH
DIM
COUNT RESET
MEMORY
COUNT/CLOCK
BRT
PG110 CN110
D0
D1
D2
K0
K1
K2
K3
S1109 ▽ MIN
S1108 △ MIN
S1107 ▽ HR
S1106 △ HR
S1104 △ DAY
S1103 ON/OFF
S1102 PRO. NO
S1101
PROGRAM NORMAL CLOCK
D9 POWER FAIL
D10 CLOCK
RESET
K0 MATRIX 0
K1 MATRIX 1
K2 MATRIX 2
K3 MATRIX 3
G0
G1 TIMER ON
G2 MEMORY OUT
G3 TIMER LED
F0 COUNTER REV
F1 REC/PAUSE
F2 POWER
F3
REEL LOCK
TEST
VSS
D8 CHANNEL UP
D7 16CH
OSC IN
OSC OUT
VP
VDD
24H
12H
SW1
SW2
SW3
SW4
7
8
9
10
11
12
13
14
15
16
17
18
19

* VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


D117
S115 CH-UP
R1120
D130
YEL
D114
D115
R1110
R131
D140
IC102
D116
R129
S116 CH-DOWN
C114
R1113
D128
R133
D126
R1116
R135
R134
S114 IRT
Q114
ZD104
C113
C110
R132
C112
ZD105
YEL
R1114
R126
R130
R1115
C111
PG108
ORN
R147
R109
R110
R108
DG101
C103
R100
C104
X101
IC101
C127
TIM
PG110
R121 BRN
R1121
R117
C123
Q104
S118 PESET
R148
R122
R120
R118
R115
D123
R119
R111
R113
PG101
R123
R116
CN709
ORN
D121
D120
D119
D118
D111
D124
D112
D113
R1101
R1100
COUNT RESET
S111
R1122
S117 FF
R1123
S112 MEMORY
S113 COUNT CLOCK
RED
R14
R127
CN703
Q112
D131
D110
BRN
S110 DIM BRT
R103
R105
R101
R102
R124
R1104
R1107
R1125
Q113
R1105
R1106
R109
D137
R1108
C124
R1124
ZD101
Q101
C121
R128
C102
R112
R1111
R106
R107
Q111
C106
ZD102
C101
R1103
C105
C115
C116
C107
R1112
PG112
RED

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE

TIMER P.C.B

PG110

1	Do
2	D1
3	D2
4	Ko
5	K1
6	K2
7	K3

To
KEY
CN110

CN709

1	LED L
2	DUAL
3	STEREO
4	$\overline{PB}$ 12V

To
PROGRAMME PRESET
PG 709

CN703

1	GND
2	CH UP
3	16CH
4	—

To
PROGRAMM PRESET
PG 703

Q114

B	10.6 (10.6)
C	19.1 (19.1)
E	10.0 (10.0)

Q104

B	0 (0)
C	0 (9.2)
E	0 (0)

Q101

B	0.5 (0.5)
C	0 (0)
E	0 (0)

Q111

B	0 (0)
C	8.8 (8.8)
E	0 (0)

Q112

B	0 (0)
C	0 (0)
E	0.5 (0.5)

Q113

B	0.5 (0.5)
C	5.4 (5.4)
E	0.1 (0.1)

PG108

1	GND
2	CLOCK
3	−24V
4	17V

To
PROGRAMME PRESET
PG708

PG101

1	CH DOWN
2	SAFETY
3	GND
4	CH UP
5	TIM. ON
6	MEMORY
7	REVERSE
8	REEL SENSOR

To
SYSTEM CONTROL
PG 931

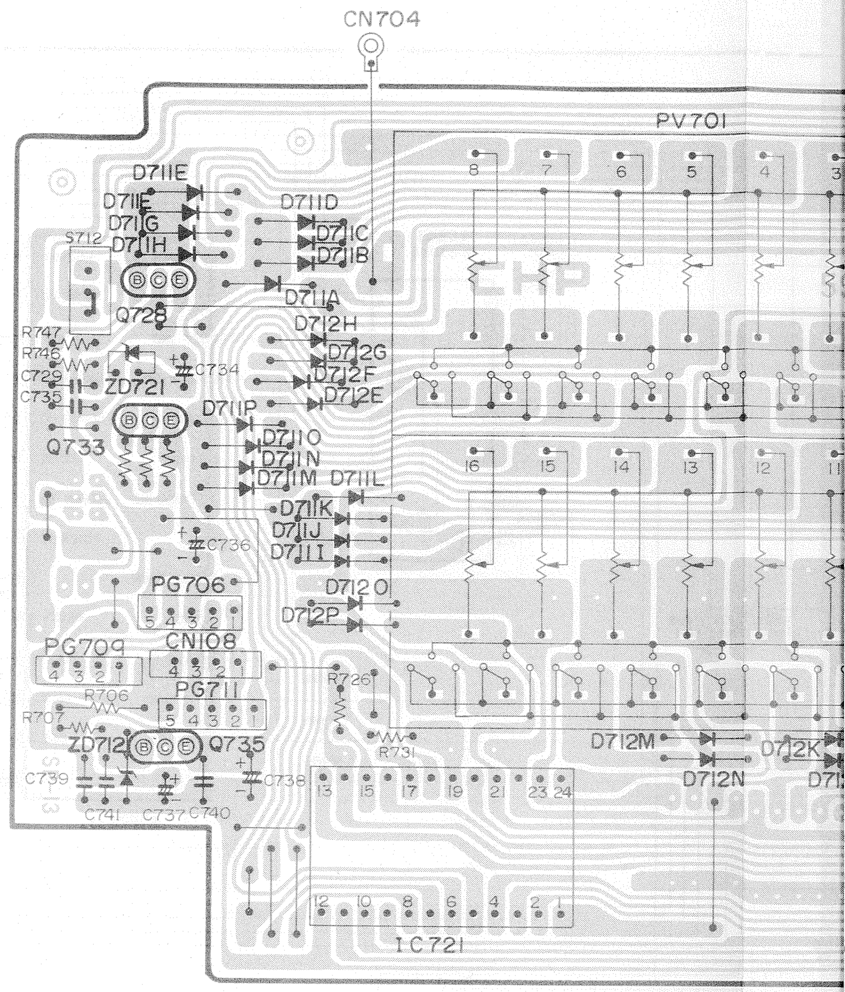
PG112

1	—
2	REC PAUSE
3	9.5V
4	TIM. STB

To
OPERATION SWITCH
PG 2015

IC101

1	8.6 (8.6)	15	0.1 (0.1)	29	-17.5 (-17.5)
2	5.3 (5.3)	16	0 (9.2)	30	-21.2 (-21.2)
3	0.1 (0.1)	17	9.1 (9.1)	31	-21.2 (-21.2)
4	0.1 (0.1)	18	9.2 (9.2)	32	5.7 (5.7)
5	0.1 (0.1)	19	4.8 (4.8)	33	4.9 (4.9)
6	1.0 (1.0)	20	9.2 (9.2)	34	-17.4 (-17.4)
7	1.0 (1.0)	21	9.2 (9.2)	35	-17.4 (-17.4)
8	1.0 (1.0)	22	0 (0)	36	-17.5 (-17.5)
9	1.0 (1.0)	23	-21.5 (-21.5)	37	-17.3 (-17.3)
10	0.1 (0.1)	24	-9.4 (-9.4)	38	-17.4 (-17.4)
11	0.1 (0.1)	25	-2.0 (-2.0)	39	-17.4 (-17.4)
12	0.1 (0.1)	26	-5.5 (-5.5)	40	-17.4 (-17.4)
13	0.1 (0.1)	27	-13.2 (-13.2)	41	0.6 (0.6)
14	-17.0 (-17.0)	28	-13.4 (-13.4)	42	9.1 (9.1)


CN704
PV701
D711E
D711F
D711G
D711H
D711D
D711C
D711B
S712
Q728
D711A
D712H
D712G
D712F
D712E
R747
R745
C729
C735
ZD721
C734
D711P
D711O
D711N
D711M
D711L
Q733
D711K
D711J
D711I
C736
PG706
D712O
D712P
PG709
CN108
PG711
R706
R707
R726
ZD712
Q735
C738
R731
D712M
D712K
D712N
C739
C741
C737
C740
IC721

PROGRAMME PR

PG706

1	DUAL
2	STEREO
3	DEF
4	LED L
5	GND

To
DEMODULATOR
PG1802

PG109

1	LED L
2	DUAL
3	STERED
4	$\overline{PB}$ 12V

To
TIMER
CN709

PG108

1	GND
2	CLOCK
3	−24V
4	18V

To
TIMER
PG108
VIA
CN108

PG711

1	40V
2	GND
3	CLOCK
4	−24V
5	18V

To
RECTIFIER
PG1551

Q728

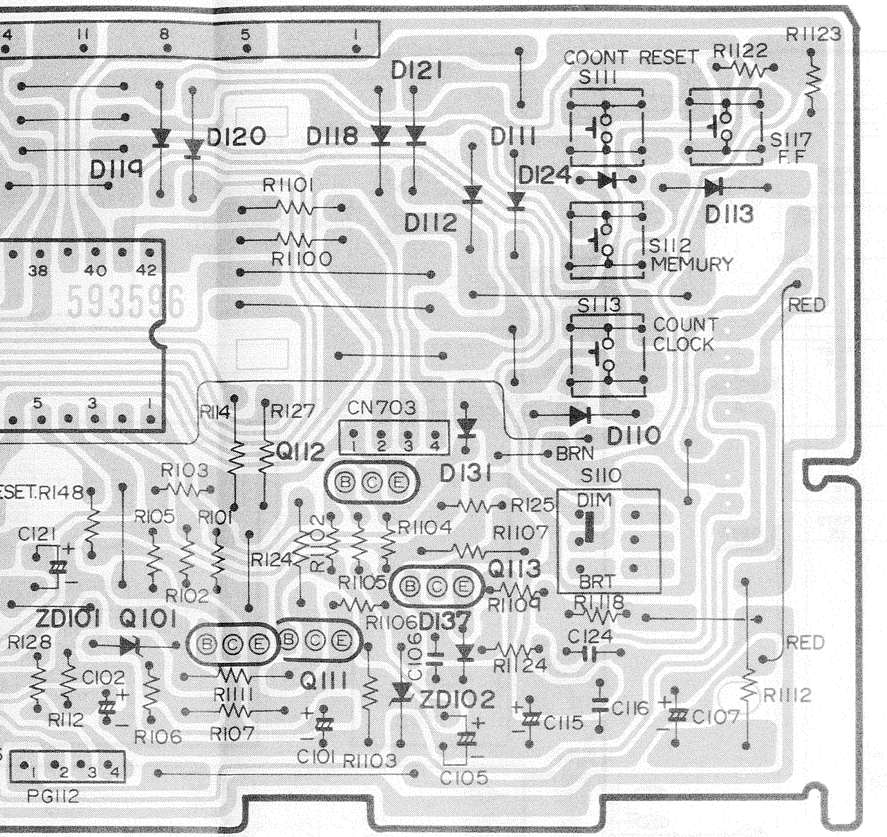
B	11.9 (11.9)
C	31.4 (31.4)
E	11.3 (11.3)

Q733

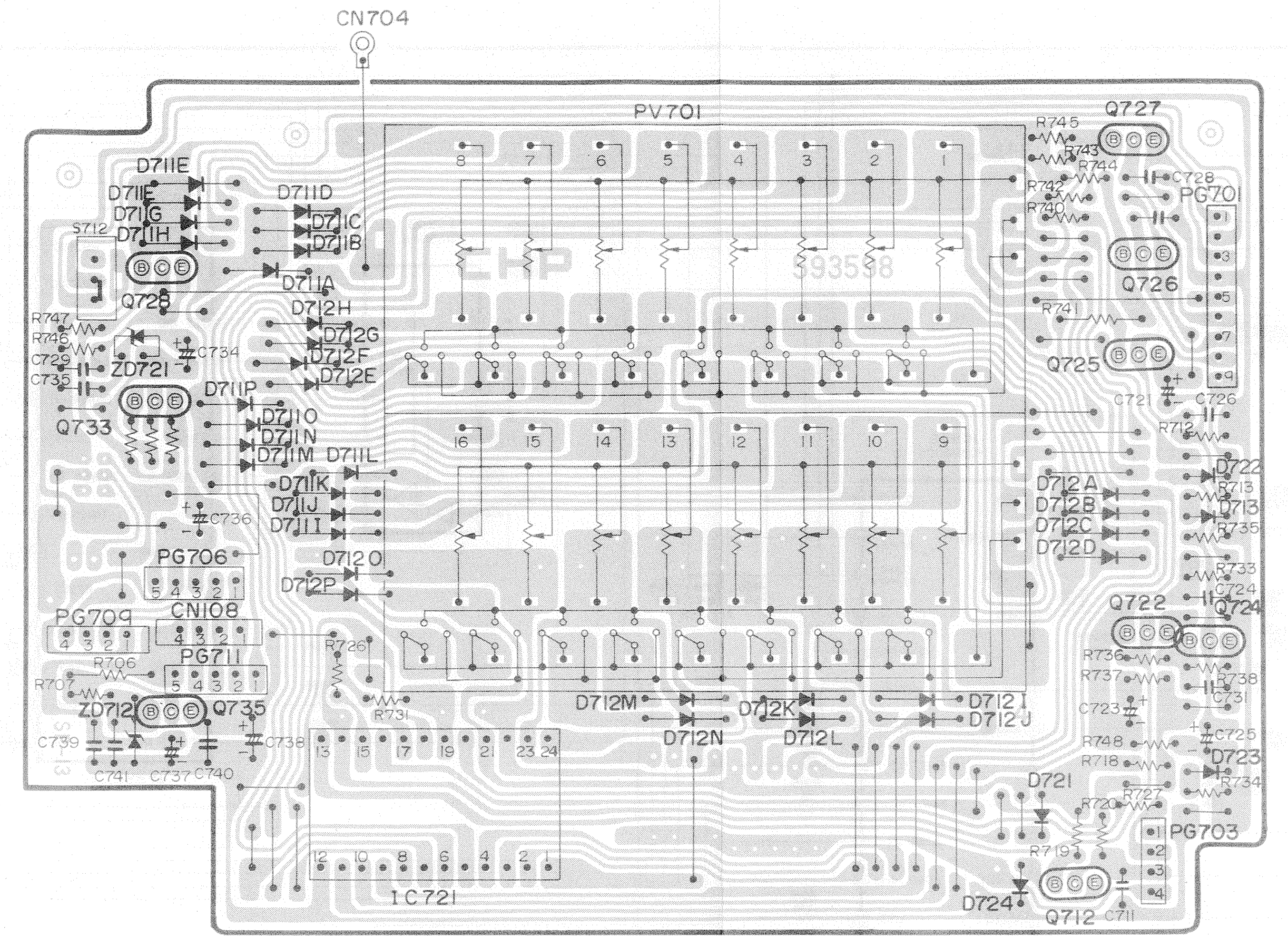
B	32.0 (32.0)
C	12.3 (12.3)
E	32.6 (32.6)

Q735

B	10.7 (10.7)
C	18.7 (18.7)
E	10.1 (10.1)


COONT RESET
S111
S117
F.F
S112
MEMORY
S113
COUNT
CLOCK
S110
DIM
BRT
CN703
D121
D120
D118
D119
D111
D124
D112
D113
D110
D131
D137
ZD101
ZD102
Q101
Q111
Q112
Q113
R1122
R1123
R1101
R1100
R1104
R1107
R1105
R1106
R1109
R1118
R1124
R1111
R1112
R1103
R125
R14
R127
R103
R105
R101
R102
R124
R128
R112
R106
R107
SET.R148
C121
C102
C106
C124
C115
C116
C107
C101
C105
RED
BRN
PG112
593596

TIMER P.C.B


CN704
PV701
Q727
Q726
Q725
Q728
Q733
Q722
Q724
Q735
Q712
PG701
PG703
PG706
PG709
PG711
CN108
IC721
S712
ZD721
ZD712
D711A
D711B
D711C
D711D
D711E
D711F
D711G
D711H
D711I
D711J
D711K
D711L
D711M
D711N
D711O
D711P
D712A
D712B
D712C
D712D
D712E
D712F
D712G
D712H
D712I
D712J
D712K
D712L
D712M
D712N
D712O
D712P
D721
D722
D723
D724
R745
R743
R744
R742
R740
R741
R747
R746
R706
R707
R726
R731
R712
R713
R735
R733
R736
R737
R738
R748
R718
R727
R720
R719
R734
C728
C729
C734
C735
C736
C721
C726
C724
C723
C731
C725
C739
C741
C737
C740
C738
C711
593558
CHP

PROGRAMME PRESET P.C.B

	703
	ND
	H UP
	CH
	—

RAMM PRESET
3

Q114

B	10.6 (10.6)
C	19.1 (19.1)
E	10.0 (10.0)

Q104

B	0 (0)
C	0 (9.2)
E	0 (0)

Q101

B	0.5 (0.5)
C	0 (0)
E	0 (0)

Q111

B	0 (0)
C	8.8 (8.8)
E	0 (0)

Q112

B	0 (0)
C	0 (0)
E	0.5 (0.5)

Q113

B	0.5 (0.5)
C	5.4 (5.4)
E	0.1 (0.1)

IC101

1	8.6 (8.6)	15	0.1 (0.1)	29	-17.5 (-17.5)
2	5.3 (5.3)	16	0 (9.2)	30	-21.2 (-21.2)
3	0.1 (0.1)	17	9.1 (9.1)	31	-21.2 (-21.2)
4	0.1 (0.1)	18	9.2 (9.2)	32	5.7 (5.7)
5	0.1 (0.1)	19	4.8 (4.8)	33	4.9 (4.9)
6	1.0 (1.0)	20	9.2 (9.2)	34	-17.4 (-17.4)
7	1.0 (1.0)	21	9.2 (9.2)	35	-17.4 (-17.4)
8	1.0 (1.0)	22	0 (0)	36	-17.5 (-17.5)
9	1.0 (1.0)	23	-21.5 (-21.5)	37	-17.3 (-17.3)
10	0.1 (0.1)	24	-9.4 (-9.4)	38	-17.4 (-17.4)
11	0.1 (0.1)	25	-2.0 (-2.0)	39	-17.4 (-17.4)
12	0.1 (0.1)	26	-5.5 (-5.5)	40	-17.4 (-17.4)
13	0.1 (0.1)	27	-13.2 (-13.2)	41	0.6 (0.6)
14	-17.0 (-17.0)	28	-13.4 (-13.4)	42	9.1 (9.1)

PG706

1	DUAL
2	STEREO
3	DEF
4	LED L
5	GND

To DEMODULATOR PG1802

PG109

1	LED L
2	DUAL
3	STEREO
4	PB 12V

To TIMER CN709

PG108

1	GND
2	CLOCK
3	−24V
4	18V

To TIMER PG108 VIA CN108

PG711

1	40V
2	GND
3	CLOCK
4	−24V
5	18V

To RECTIFIER PG1551

Q728

B	11.9 (11.9)
C	31.4 (31.4)
E	11.3 (11.3)

Q733

B	32.0 (32.0)
C	12.3 (12.3)
E	32.6 (32.6)

Q735

B	10.7 (10.7)
C	18.7 (18.7)
E	10.1 (10.1)

Q727

B	0 (12.3)
C	0 (0)
E	0 (12.3)

Q726

B	0 (12.3)
C	0 (0)
E	0 (12.3)

Q725

B	0 (11.6)
C	0 (12.2)
E	0 (12.3)

Q722

B	0 (0)
C	10.0 (10.0)
E	0 (0)

Q724

B	10.1 (10.1)
C	0 (0)
E	10.1 (10.1)

Q712

B	1.3 (1.3)
C	0.6 (0.6)
E	0.6 (0.6)

PG701

1	AFS 2
2	AFS 1
3	PB 12V
4	GND
5	VT
6	BU
7	BL
8	BH
9	DEF

To TUNER/IF PG752

PG703

1	GND
2	CH UP
3	16CH
4	——

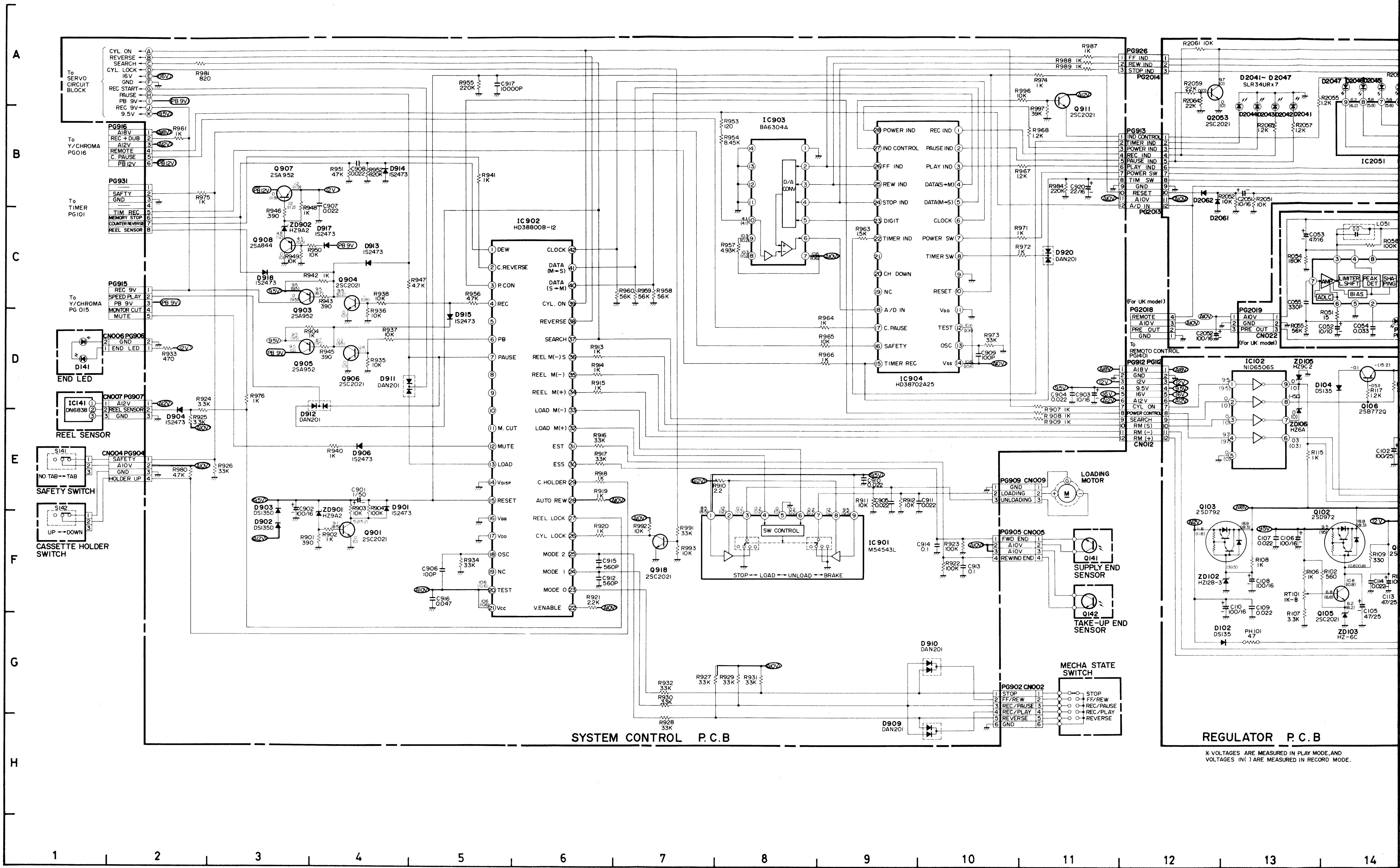
To TIMER CN703

IC721

13	14	15	16	17	18	19	20	21	22	23	24
10.0	10.1	2.9	2.7	0	0	1.1	0	31.4	31.4	31.4	31.4
12	11	10	9	8	7	6	5	4	3	2	1
0	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN( ) ARE MEASURED IN RECORD MODE.

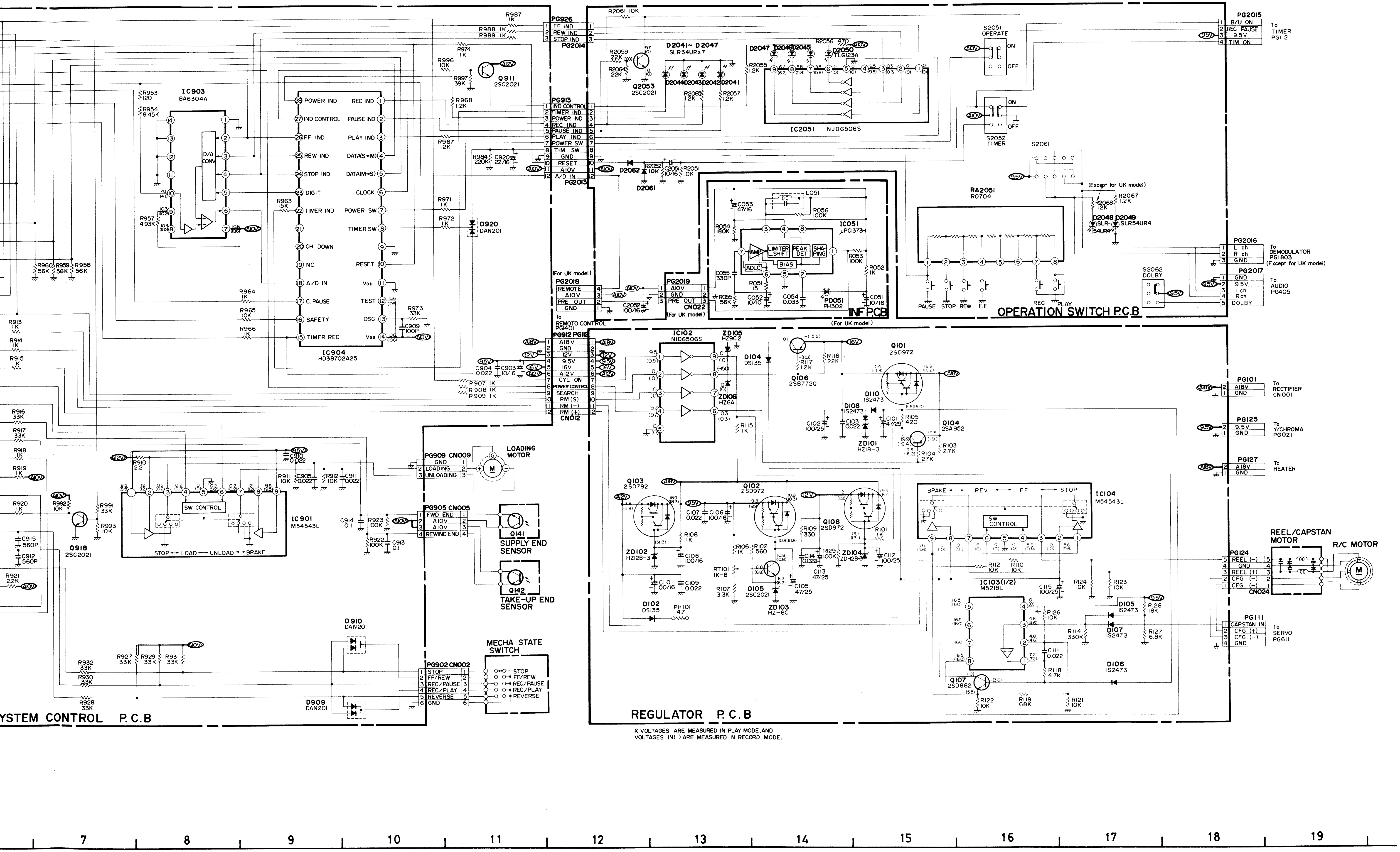
SYSTEM CONTROL/OPERATION SWITCH/REGULATOR[For UK model] [Except for UK model]



A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
13
14
To SERVO CIRCUIT BLOCK
CYL ON
REVERSE
SEARCH
CYL. LOCK
16V
GND
REC START
PAUSE
PB 9V
REC 9V
9.5V
To Y/CHROMA PG016
PG916
A18V
REC+DUB
A12V
REMOTE
C. PAUSE
PB 12V
To TIMER PG101
PG931
SAFTY
GND
TIM REC
MEMORY STOP
COUNTER REVERSE
REEL SENSOR
To Y/CHROMA PG 015
PG915
REC 9V
SPEED PLAY
PB 9V
MONTOR CUT
MUTE
CN006 PG906
END LED
D141
END LED
CN007 PG907
IC141
DN6838
REEL SENSOR
REEL SENSOR
CN004 PG904
SAFETY
A10V
HOLDER UP
S141
NO TAB ↔ TAB
SAFETY SWITCH
S142
UP ↔ DOWN
CASSETTE HOLDER SWITCH
Q907
2SA952
Q908
2SA844
ZD902
HZ9A2
D917
1S2473
D913
1S2473
D914
1S2473
D918
1S2473
Q904
2SC2021
Q903
2SA952
Q905
2SA952
Q906
2SC2021
D911
DAN201
D912
DAN201
D904
1S2473
D906
1S2473
D915
1S2473
D903
DS135D
D902
DS135D
ZD901
HZ9A2
Q901
2SC2021
D901
1S2473
IC902
HD38800B-12
DEW
C.REVERSE
P.CON
REC
PB
PAUSE
M. CUT
MUTE
LOAD
VDISP
RESET
VBB
VDD
OSC
NC
TEST
Vcc
CLOCK
DATA (M→S)
DATA (S→M)
CYL. ON
REVERSE
SEARCH
REEL M(−)S
REEL M(−)
REEL M(+)
LOAD M(−)
LOAD M(+)
EST
ESS
C.HOLDER
AUTO REW
REEL LOCK
CYL. LOCK
MODE 2
MODE 1
MODE 0
V.ENABLE
Q918
2SC2021
IC903
BA6304A
D/A CONV
Q911
2SC2021
IC904
HD38702A25
POWER IND
IND CONTROL
FF IND
REW IND
STOP IND
DIGIT
TIMER IND
CH DOWN
NC
A/D IN
C. PAUSE
SAFETY
TIMER REC
REC IND
PAUSE IND
PLAY IND
DATA(S→M)
DATA(M→S)
CLOCK
POWER SW
TIMER SW
RESET
VDD
TEST
OSC
Vss
D920
DAN201
IC901
M54543L
SW CONTROL
STOP ↔ LOAD ↔ UNLOAD ↔ BRAKE
PG909 CN009
GND
LOADING
UNLOADING
LOADING MOTOR
M
PG905 CN005
FWD END
A10V
REWIND END
Q141
SUPPLY END SENSOR
Q142
TAKE-UP END SENSOR
D910
DAN201
D909
DAN201
PG902 CN002
STOP
FF/REW
REC/PAUSE
REC/PLAY
REVERSE
GND
MECHA STATE SWITCH
SYSTEM CONTROL P.C.B
PG926
FF IND
REW IND
STOP IND
PG2014
PG913
IND CONTROL
TIMER IND
POWER IND
REC IND
PAUSE IND
PLAY IND
POWER SW
TIM SW
GND
RESET
A10V
A/D IN
PG2013
D2061
D2062
Q2053
2SC2021
D2041~D2047
SLR34URx7
IC2051
(For UK model)
PG2018
REMOTE
A10V
PRE OUT
GND
To REMOTO CONTROL PG1401
PG2019
CN022
(For UK model)
L051
AMP
LIMITER L.SHIFT
PEAK DET
SHA-PING
BIAS
ADLC
PG912 PG112
A18V
GND
12V
9.5V
16V
A12V
CYL ON
POWER CONTROL
SEARCH
RM (S)
RM (−)
RM (+)
CN012
IC102
NID6506S
ZD105
HZ9C2
D104
DS135
Q106
2SB772Q
ZD106
HZ6A
Q103
2SD792
Q102
2SD972
ZD102
HZ12B-3
RT101
1K-B
Q105
2SC2021
ZD103
HZ-6C
D102
DS135
PH101
REGULATOR P.C.B

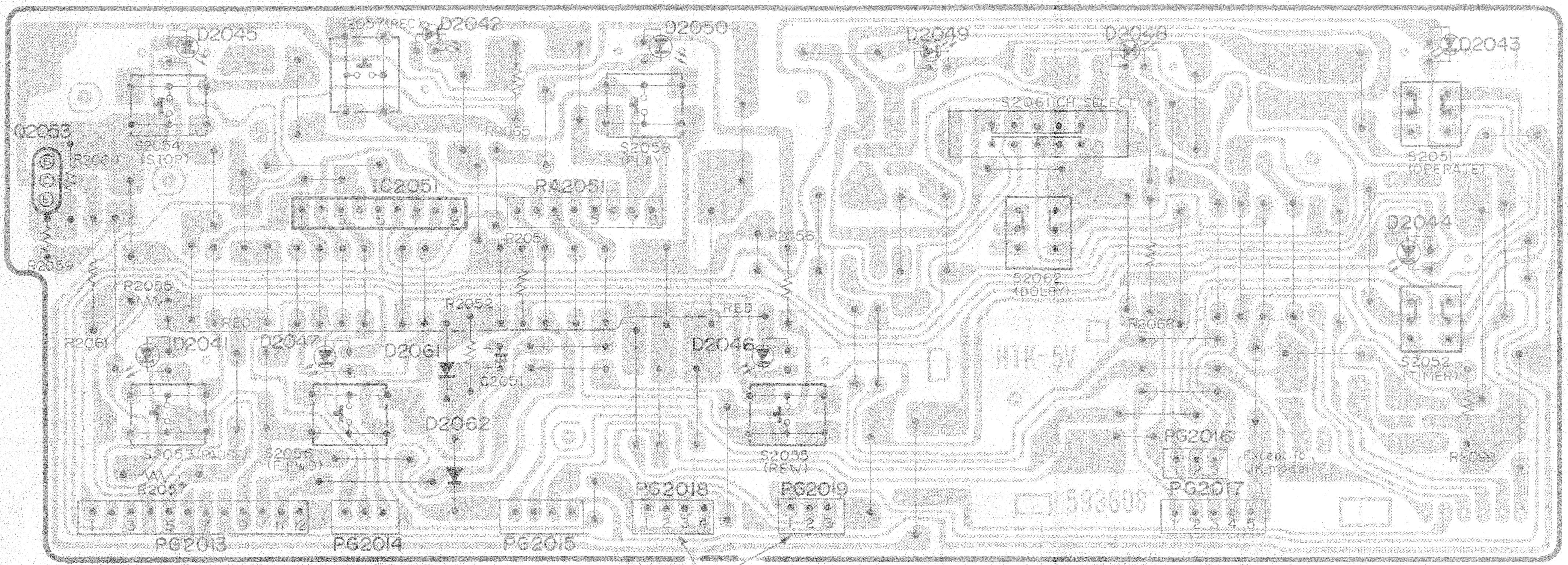
※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN( ) ARE MEASURED IN RECORD MODE.

for UK model]


YSTEM CONTROL P.C.B
IC903 BA6304A
D/A CONV
IC904 HD38702A25
POWER IND
IND CONTROL
FF IND
REW IND
STOP IND
DIGIT
TIMER IND
CH DOWN
NC
A/D IN
C. PAUSE
SAFETY
TIMER REC
REC IND
PAUSE IND
PLAY IND
DATA(S→M)
DATA(M→S)
CLOCK
POWER SW
TIMER SW
RESET
VDD
TEST
OSC
Vss
Q911 2SC2021
D920 DAN201
IC901 M54543L
SW CONTROL
STOP ← LOAD → UNLOAD → BRAKE
Q918 2SC2021
PG909 CN009
GND
LOADING
UNLOADING
LOADING MOTOR
PG905 CN005
FWD END
A10V
REWIND END
Q141 SUPPLY END SENSOR
Q142 TAKE-UP END SENSOR
D910 DAN201
D909 DAN201
PG902 CN002
STOP
FF/REW
REC/PAUSE
REC/PLAY
REVERSE
GND
MECHA STATE SWITCH
PG926
FF IND
REW IND
STOP IND
PG2014
PG913
IND CONTROL
TIMER IND
POWER IND
REC IND
PAUSE IND
PLAY IND
POWER SW
TIM SW
GND
RESET
A10V
A/D IN
PG2013
D2041~D2047 SLR34URx7
Q2053 2SC2021
D2050 TLG123A
IC2051 NJD6506S
S2051 OPERATE
S2052 TIMER
S2061
RA2051 R0704
(Except for UK model)
D2048 D2049 SLR54UR4
PAUSE STOP REW F.F REC PLAY
OPERATION SWITCH P.C.B
IC051 µPC1373H
AMP LIMITER L.SHIFT PEAK DET SHAPING ADLC BIAS
PD051 PH302
INF P.C.B
(For UK model)
PG2018
REMOTE
A10V
PRE OUT
GND
To REMOTO CONTROL PG1401
PG2019 CN022
(For UK model)
PG2015
B/U ON
REC PAUSE
9.5V
TIM ON
To TIMER PG112
PG2016
L ch
R ch
GND
To DEMODULATOR PG1803 (Except for UK model)
S2062 DOLBY
PG2017
GND
9.5V
L ch
R ch
DOLBY
To AUDIO PG405
PG912 PG112
A18V
GND
12V
9.5V
16V
A12V
CYL ON
POWER CONTROL
SEARCH
RM (S)
RM (−)
RM (+)
CN012
IC102 N1D6506S
ZD105 HZ9C2
ZD106 HZ6A
D104 DS135
Q106 2SB772Q
Q101 2SD972
D110 1S2473
D108 1S2473
ZD101 HZ18-3
Q104 2SA952
Q103 2SD792
ZD102 HZ12B-3
Q102 2SD972
Q108 2SD972
ZD104 ZD-12B-3
RT101 1K-B
Q105 2SC2021
ZD103 HZ-6C
D102 DS135
PH101 47
IC104 M54543L
BRAKE ← REV → FF → STOP
SW CONTROL
IC103(1/2) M5218L
D105 1S2473
D107 1S2473
D106 1S2473
Q107 2SD882
REGULATOR P.C.B
PG101
A18V
GND
To RECTIFIER CN001
PG125
9.5V
GND
To Y/CHROMA PG021
PG127
A18V
GND
To HEATER
REEL/CAPSTAN MOTOR
R/C MOTOR
PG124 CN024
REEL (−)
GND
REEL (+)
CFG (−)
CFG (+)
PG111
CAPSTAN IN
CFG (+)
CFG (−)
GND
To SERVO PG611
7
8
9
10
11
12
13
14
15
16
17
18
19

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN( ) ARE MEASURED IN RECORD MODE.

OPERATION SWITCH[For UK model] [Except for UK model]


D2045
S2057(REC)
D2042
D2050
D2049
D2048
D2043
Q2053
R2064
S2054 (STOP)
R2065
S2058 (PLAY)
S2061(CH SELECT)
S2051 (OPERATE)
IC2051
RA2051
R2051
R2056
S2062 (DOLBY)
D2044
R2059
R2055
R2061
RED
D2041
D2047
R2052
D2061
C2051
RED
D2046
R2068
HTK-5V
S2052 (TIMER)
D2062
S2053(PAUSE)
S2056 (F.FWD)
S2055 (REW)
PG2016
(Except for UK model)
R2099
R2057
PG2018
PG2019
PG2017
593608
PG2013
PG2014
PG2015

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

(For UK model)

OPERATION SWITCH P.C.B

Q2053

B	0(0)
C	9.7(0)
E	0(0)

IC2051

1	0(0)
2	0(0)
3	0.3(0)
4	9.5(9.5)
5	0(0)
6	0(0)
7	5.8(5.8)
8	5.8(5.8)
9	6.2(6.2)

PG2013

1	IND. CONTROL
2	TIM. IND.
3	POWER IND
4	REC. IND.
5	PAUSE. IND.
6	PLAY IND.
7	POWER SW
8	TIM. SW
9	GND
10	RESET
11	A10V
12	A/D IN

To SYSTEM CONTROL PG913 VIA CN013

PG2014

1	FF IND
2	REW IND
3	STOP IND

To SYSTEM CONTROL PG926 VIA CN405

PG2015

1	B/U ON
2	REC PAUSE
3	9.5V
4	TIM. ON

To TIMER PG112

PG2018(For UK model)

1	GND
2	PRE OUT
3	A10V
4	REMOTE

To REMOTE CONTROL PG1401

PG2019

1	A10V
2	GND
3	PRE OUT

To INF CN022

PG2017

1	GND
2	9.5V
3	Lch
4	Rch
5	DOLBY

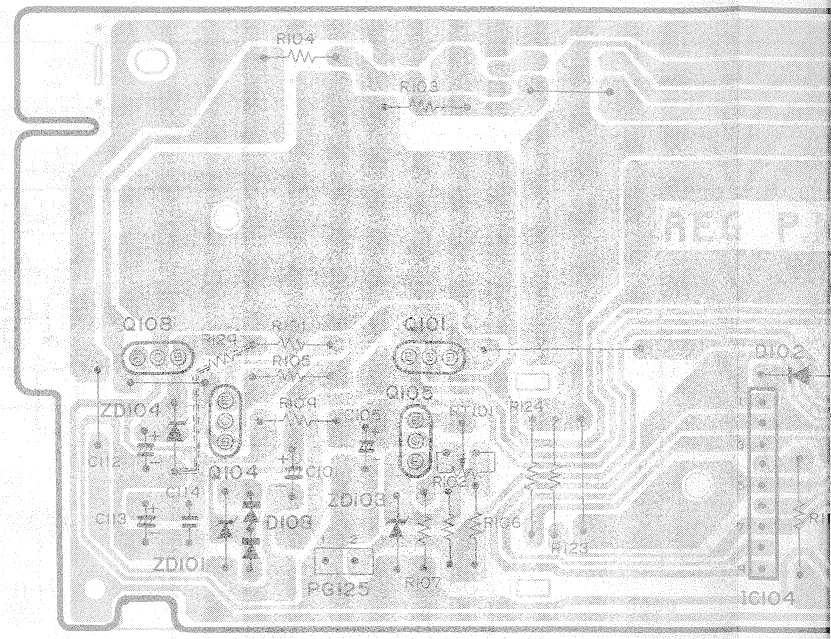
To AUDIO PG405

PG2016

1	Lch
2	Rch
3	GND

To DEMODULATOR PG1803

REGULATOR


R104
R103
REG P.
Q108
R129
R101
R105
Q101
D102
ZD104
R109
C105
Q105
RT101
R124
C112
C114
Q104
C101
ZD103
C113
D108
R106
ZD101
PG125
R107
R123
IC104

PG101

2	A18V
1	GND

To RECTIFIER CN001

PG111

1	CAPSTAN
2	CFG (+)
3	CFG (−)
4	GND

To SERVO PG611

PG112

1	A18V
2	GND
3	12V
4	9.5V
5	16V
6	A12V
7	CYL ON
8	POWER CONT.
9	SEARCH
10	REEL(−)S
11	REEL(−)
12	REEL(+)

To SYSCON PG912 VIA CN012

PG124

5	REEL(−)
4	GND
3	REEL(+)
2	CFG (−)
1	CFG (+)

To CAPSTAN MOTOR DRIVER P.C.B CN024

PG125

2	9.5V
1	GND

To Y/CHROMA PG021

PG127

2	A18V
1	GND

To HEATER

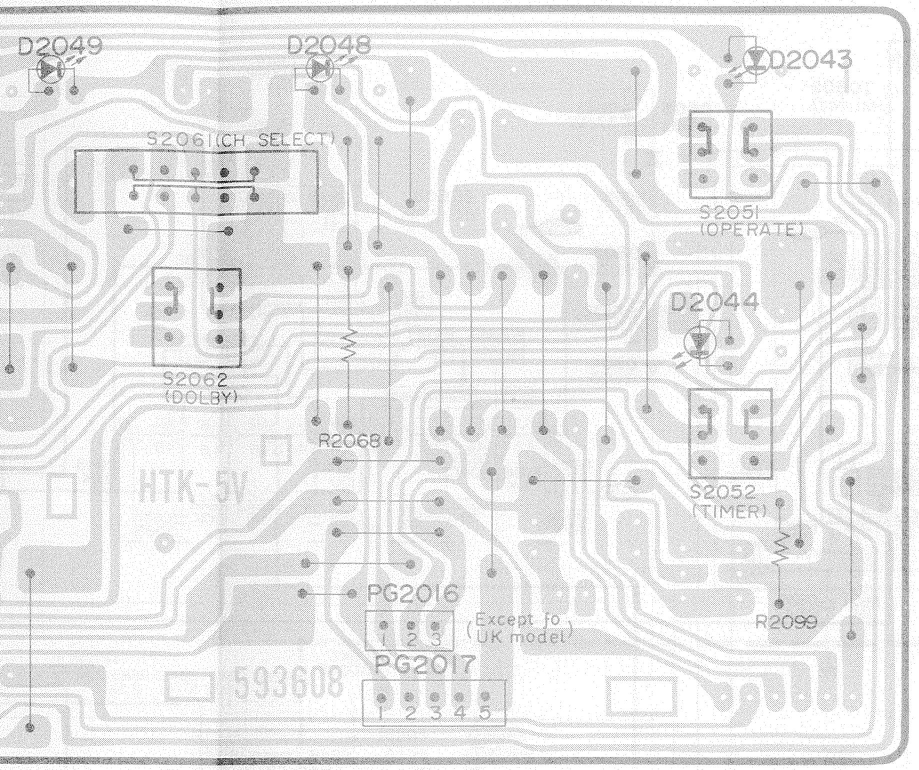
	9
	0 (0)
REW. FF	9.3
REV. S FWD. S	—

IC103

		REW. FF
1	7.2 (7.2)	1.4
2	4.8 (4.6)	5.0
3	4.8 (4.6)	2.2
4	0 (0)	0
5	16.5(16.0)	16.8
6	16.5(16.0)	16.3
7	−16.0	16.3
8	16.5(16.0)	16.8

IC104

		REW. FF
1	5.6(5.6)	8.0
2	10 (10)	10
3	5.6(5.6)	R 0.2 F 7.5
4	0(0)	R 6 F 0
5	0(0)	0
6	6(6)	R 0 F 6
7	0.1(0.1)	R 7.5 F 0
8	10(10)	10
9	5.6(5.6)	8.0


D2049
D2048
D2043
S2061(CH SELECT)
S2051
(OPERATE)
D2044
S2062
(DOLBY)
R2068
HTK-5V
S2052
(TIMER)
PG2016
(Except for UK model)
PG2017
1 2 3 4 5
593608
R2099

PERATION SWITCH P.C.B

UK model)

To
REMOTE
CONTROL
PG1401

To
INF
CN022

PG2017

1	GND
2	9.5V
3	Lch
4	Rch
5	DOLBY

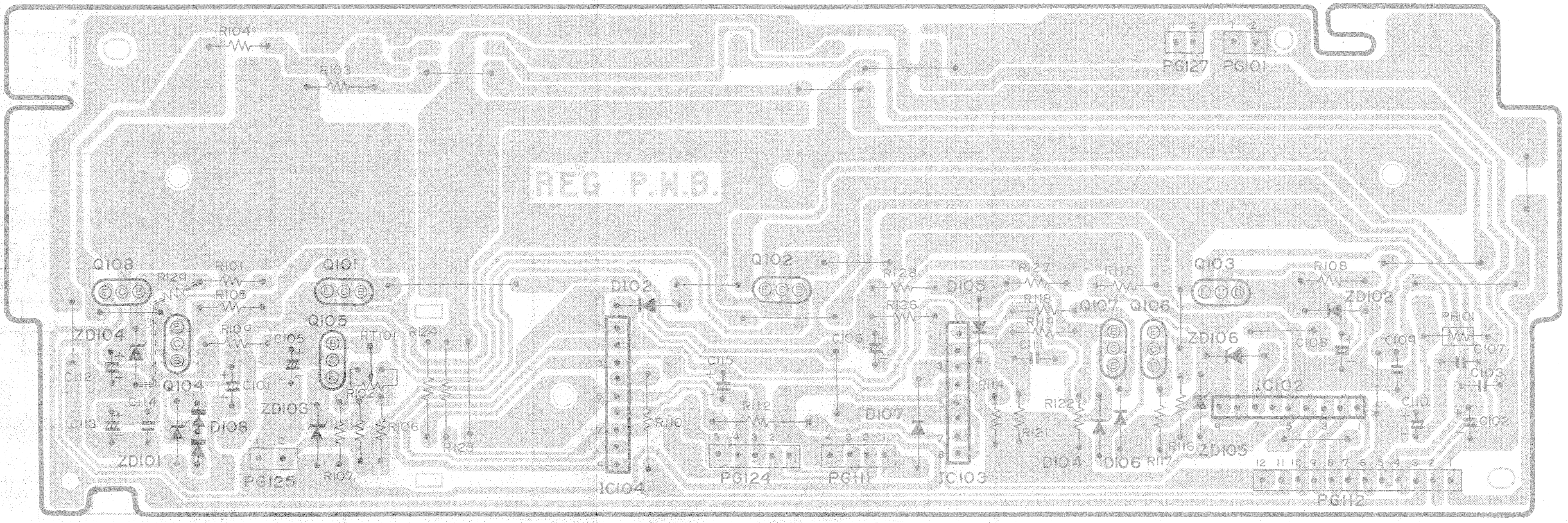
To
AUDIO
PG405

PG2016

1	Lch
2	Rch
3	GND

To
DEMODULATOR
PG1803

REGULATOR


REG P.W.B.
R104
R103
Q108
R129
R101
R105
Q101
Q105
R109
C105
RT101
R124
ZD104
C112
Q104
C101
C114
C113
D108
ZD103
R102
R106
R123
ZD101
PG125
R107
D102
IC104
Q102
C115
R112
R110
PG124
PG111
R128
R126
D105
C106
D107
IC103
R127
R118
R119
C111
R114
R121
R122
D104
D106
Q107
Q106
R115
R117
R116
Q103
ZD106
ZD105
R108
ZD102
C108
C109
PH101
C107
C103
IC102
C110
C102
PG112
PG127
PG101

REGULATOR P.C.B

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

PG101

2	A18V
1	GND

To
RECTIFIER
CN001

PG124

5	REEL(−)
4	GND
3	REEL(+)
2	CFG (−)
1	CFG (+)

To
CAPSTAN MOTOR
DRIVER P.C.B
CN024

PG111

1	CAPSTAN
2	CFG (+)
3	CFG (−)
4	GND

To
SERVO
PG611

PG125

2	9.5V
1	GND

To
Y/CHROMA
PG021

PG112

1	A18V
2	GND
3	12V
4	9.5V
5	16V
6	A12V
7	CYL ON
8	POWER CONT.
9	SEARCH
10	REEL(−)S
11	REEL(−)
12	REEL(+)

To
SYSCON
PG912
VIA
CN012

PG127

2	A18V
1	GND

To
HEATER

IC102

	9	8	7	6	5	4	3	2	1
	0 (0)	− (15.0)	0 (0)	0.3 (0.3)	0 (0)	9.7 (9.7)	0 (0)	0 (0)	9.5 (9.5)
REW. FF	9.3	16.8	6.2	0.3	0	9.7	0	0	0
REV. S FWD. S	—	—	—	0.3	0	9.7	R 9.7 F 0	9.7	9.5

IC103

		REW. FF	SEARCH
1	7.2 (7.2)	1.4	R 15.9 F 14.7
2	4.8 (4.6)	5.0	5.3
3	4.8 (4.6)	2.2	8
4	0 (0)	0	0
5	16.5 (16.0)	16.8	16.2
6	16.5 (16.0)	16.3	16.2
7	−16.0	16.3	16.2
8	16.5 (16.0)	16.8	16.2

IC104

		REW. FF	SEARCH
1	5.6 (5.6)	8.0	14.1
2	10 (10)	10	14.5
3	5.6 (5.6)	R 0.2 F 7.5	R 0.2 F 14
4	0 (0)	R 6 F 0	R 6 F 0
5	0 (0)	0	0
6	6 (6)	R 0 F 6	R 0 F 6
7	0.1 (0.1)	R 7.5 F 0	R 1.4 F 0.2
8	10 (10)	10	14.5
9	5.6 (5.6)	8.0	14.1

Q101

		STOP	REW. FF	SEARCH
B	16.6 (16.0)	16.8	16.8	16.7
C	18.9 (18.2)	19.9	19.3	18.6
E	15.4 (14.8)	16.8	16.8	15.4

Q104

		STOP	REW. FF	SEARCH
B	19.3 (18.7)	20.1	19.5	19.1
C	19.9 (19.4)	20.8	20.0	19.6
E	19.8 (19)	20.4	19.8	19.4

Q107

		STOP	REW. FF	SEARCH
B	− (3.6)	8.6	8.6	14.9
C	− (10)	11.4	10.1	14.6
E	− (5.5)	8.1	8.0	13

Q102

		STOP	REW. FF	SEARCH
B	10.8 (10.8)	9.5	10.7	10.8
C	18.9 (18.3)	19.8	19.3	18.6
E	9.5 (9.5)	9.5	9.5	9.5

Q105

		STOP	REW. FF	SEARCH
B	6.8 (6.8)	6.8	6.8	6.9
C	10.8 (10.8)	10.7	10.7	10.8
E	6.2 (6.2)	6.3	6.2	6.2

Q108

		STOP	REW. FF	SEARCH
B	13.1 (13.1)	12	13.2	13.1
C	19.3 (18.7)	20.4	19.9	19
E	12 (13.1)	12	12	12

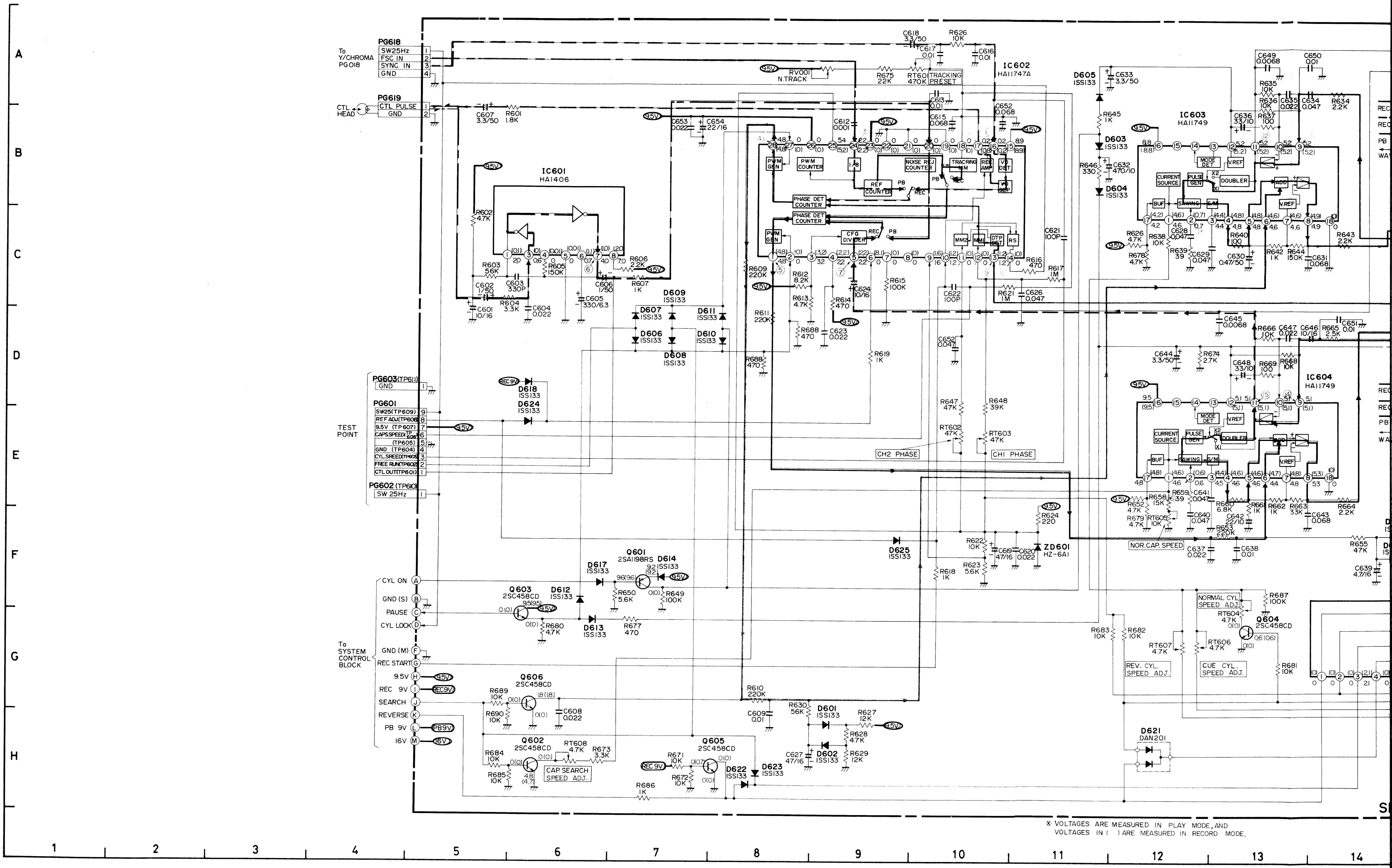
Q103

		STOP	REW. FF	SEARCH
B	13 (13)	11.9	13.0	13.0
C	18.9 (18.3)	19.9	19.3	18.6
E	11.8 (11.8)	11.9	11.8	11.9

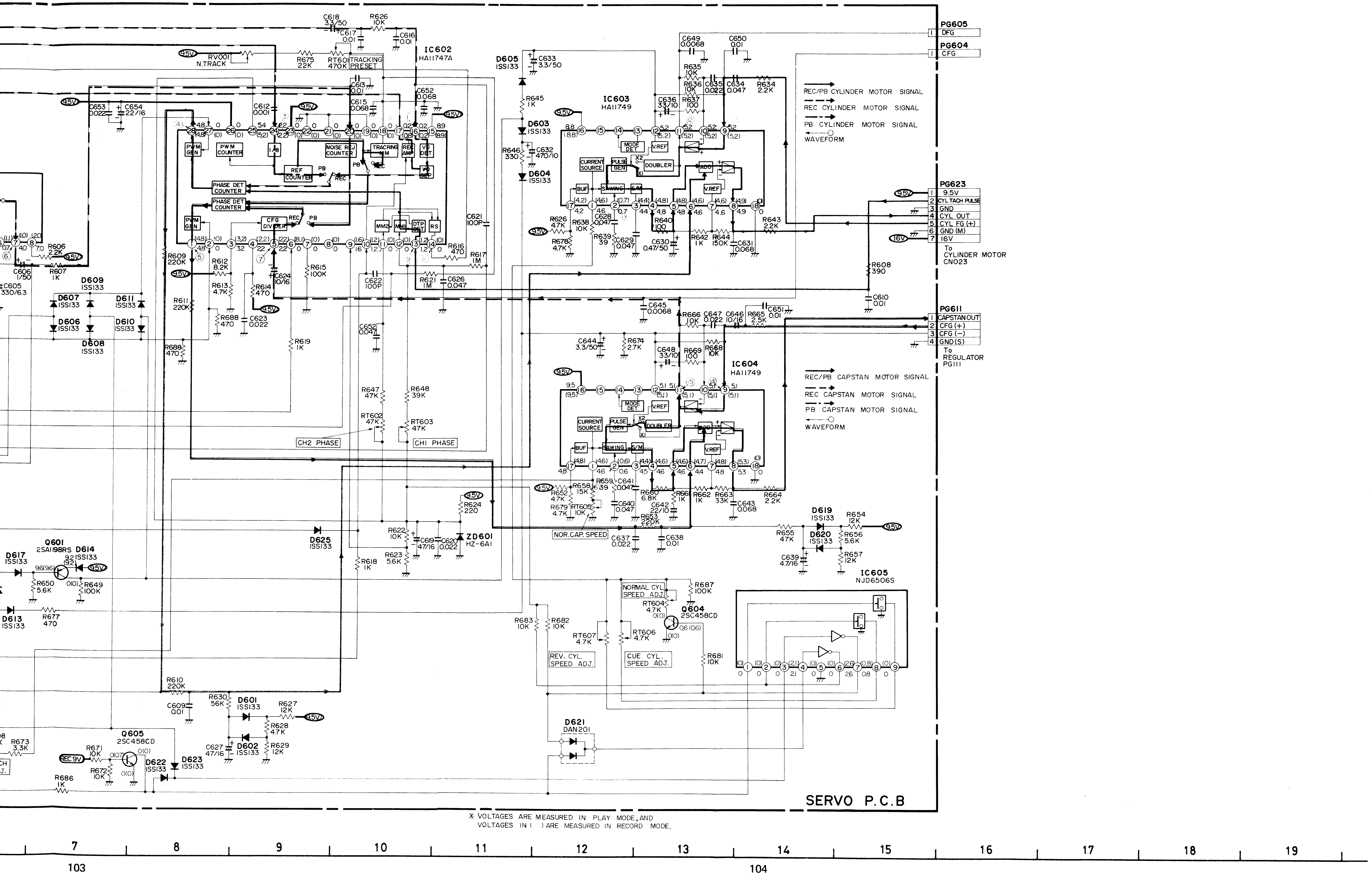
Q106

		STOP	REW. FF	SEARCH
B	− (15.1)	16.8	16.6	14.6
C	− 0.1	0.1	0.1	15.3
E	− (15.2)	16.9	16.8	15.4

SERVO


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
13
14
To Y/CHROMA PG018
PG618
SW25Hz
FSC IN
SYNC IN
GND
PG619
CTL HEAD
CTL PULSE
GND
C607 3.3/50
R601 1.8K
IC601 HA11406
R602 4.7K
R603 56K
C602 1/50
C603 330P
R604 3.3K
C601 10/16
C604 0.022
R605 150K
C605 330/6.3
C606 1/50
R606 2.2K
R607 1K
C618 3.3/50
C617 0.01
R626 10K
C616 0.01
IC602 HA11747A
RV001 N.TRACK
R675 22K
RT601 470K
TRACKING PRESET
C613 0.01
C615 0.068
C652 0.068
C612 0.001
C653 0.022
C654 22/16
PWM GEN
PWM COUNTER
1/8
NOISE REJ COUNTER
TRACKING MM
REF AMP
V.D DET
REF COUNTER
PB
REC
V.D SEP
PHASE DET COUNTER
CFG DIVIDER
MM2
MM1
DTP DET
RS
C621 100P
R616 470
R617 1M
R621 1M
C626 0.047
C622 100P
R609 220K
R612 8.2K
R613 4.7K
R614 470
C624 10/16
R615 100K
R611 220K
R688 470
C623 0.022
R619 1K
C652 0.047
R647 47K
R648 39K
RT602 47K
RT603 47K
CH2 PHASE
CH1 PHASE
D609 1SS133
D607 1SS133
D611 1SS133
D606 1SS133
D610 1SS133
D608 1SS133
PG603(TP611)
GND
PG601
SW25(TP609)
REF ADJ(TP608)
9.5V (TP607)
CAPS.SPEED(TP606)
(TP605)
GND (TP604)
CYL.SPEED(TP603)
FREE RUN(TP602)
CTL OUT(TP601)
TEST POINT
PG602 (TP610)
SW 25Hz
D618 1SS133
D624 1SS133
REC9V
9.5V
To SYSTEM CONTROL BLOCK
CYL ON
GND (S)
PAUSE
CYL LOCK
GND (M)
REC START
9.5V
REC 9V
SEARCH
REVERSE
PB 9V
16V
Q601 2SA1198RS
D617 1SS133
D614 1SS133
R650 5.6K
R649 100K
Q603 2SC458CD
D612 1SS133
R680 4.7K
D613 1SS133
R677 470
Q606 2SC458CD
R689 10K
R690 10K
C608 0.022
Q602 2SC458CD
RT608 4.7K
R673 3.3K
R684 10K
R685 10K
CAP SEARCH SPEED ADJ.
Q605 2SC458CD
R671 10K
R672 10K
R686 1K
D622 1SS133
D623 1SS133
R610 220K
C609 0.01
R630 56K
D601 1SS133
R627 12K
R628 4.7K
R629 12K
C627 47/16
D602 1SS133
D625 1SS133
R618 1K
R622 10K
C619 47/16
C620 0.022
R623 5.6K
R624 220
ZD601 HZ-6A1
D605 1SS133
C633 3.3/50
R645 1K
D603 1SS133
R646 330
C632 470/10
D604 1SS133
IC603 HA11749
C649 0.0068
C650 0.01
R635 10K
R636 10K
C635 0.022
C634 0.047
R634 2.2K
C636 33/10
R637 100
MODE DET
V.REF
CURRENT SOURCE
PULSE GEN
DOUBLER
ADD
BUF
SAWING
S/M
R626 4.7K
R678 4.7K
R638 10K
C628 0.047
R639 39
C629 0.047
R640 100
C630 0.47/50
R642 1K
R644 150K
C631 0.068
R643 2.2K
C645 0.0068
R666 10K
C647 0.022
C646 10/16
R665 2.5K
C651 0.01
C644 3.3/50
R674 2.7K
C648 33/10
R669 100
R668 10K
IC604 HA11749
R652 4.7K
R658 15K
R659 39
C641 0.047
R679 4.7K
RT605 10K
C640 0.047
R660 6.8K
C642 22/10
R653 220K
R661 1K
R662 1K
R663 33K
C643 0.068
R664 2.2K
NOR.CAP. SPEED
C637 0.022
C638 0.01
R655 47K
C639 4.7/16
NORMAL CYL SPEED ADJ.
R687 100K
RT604 4.7K
Q604 2SC458CD
R683 10K
R682 10K
RT607 4.7K
RT606 4.7K
R681 10K
REV. CYL. SPEED ADJ.
CUE CYL. SPEED ADJ.
D621 DAN201

X VOLTAGES ARE MEASURED IN PLAY MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

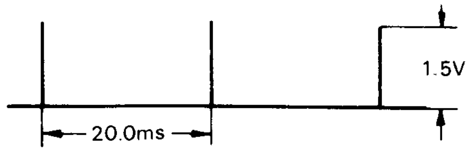

IC602
HA11747A
IC603
HA11749
IC604
HA11749
IC605
NJD6506S
RV001
N.TRACK
RT601 470K
TRACKING PRESET
PWM GEN
PWM COUNTER
1/8
REF COUNTER
NOISE REJ COUNTER
TRACRING MM
REC AMP
VD DET
VD SEP
PHASE DET COUNTER
PHASE DET COUNTER
CFG DIVIDER
MM2
MM1
DTP DET
RS
PB
REC
CURRENT SOURCE
PULSE GEN
MODE DET
V.REF
DOUBLER
X2
X1
ADD
BUF
SAWING
S/M
CH2 PHASE
CH1 PHASE
RT602 47K
RT603 47K
NOR.CAP. SPEED
NORMAL CYL. SPEED ADJ.
REV. CYL. SPEED ADJ.
CUE CYL. SPEED ADJ.
RT604 4.7K
RT605 10K
RT606 4.7K
RT607 4.7K
Q601 2SA1198RS
Q604 2SC458CD
Q605 2SC458CD
D601 1SS133
D602 1SS133
D603 1SS133
D604 1SS133
D605 1SS133
D606 1SS133
D607 1SS133
D608 1SS133
D609 1SS133
D610 1SS133
D611 1SS133
D613 1SS133
D614 1SS133
D617 1SS133
D619 1SS133
D620 1SS133
D621 DAN201
D622 1SS133
D623 1SS133
D625 1SS133
ZD601 HZ-6A1
9.5V
16V
REC 9V
PG605
1 DFG
PG604
1 CFG
PG623
1 9.5V
2 CYL TACH PULSE
3 GND
4 CYL OUT
5 CYL FG (+)
6 GND (M)
7 16V
To CYLINDER MOTOR CN023
PG611
1 CAPSTAN OUT
2 CFG (+)
3 CFG (−)
4 GND (S)
To REGULATOR PG111
REC/PB CYLINDER MOTOR SIGNAL
REC CYLINDER MOTOR SIGNAL
PB CYLINDER MOTOR SIGNAL
WAVEFORM
REC/PB CAPSTAN MOTOR SIGNAL
REC CAPSTAN MOTOR SIGNAL
PB CAPSTAN MOTOR SIGNAL
WAVEFORM
SERVO P.C.B
7
8
9
10
11
12
13
14
15
16
17
18
19

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

SERVO WAVEFORM DIAGRAM

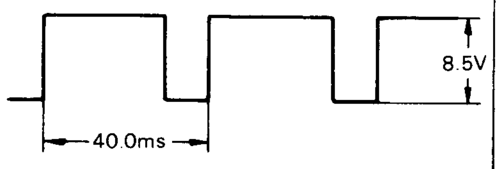
The diagram below shows the waveforms obtained when the color bar signal (0.5Vp-p) is input to the video input jack.

1



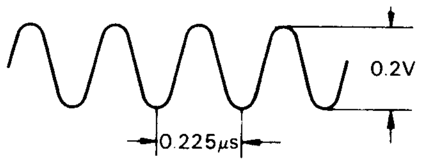
IC602-⑯ (REC)

2



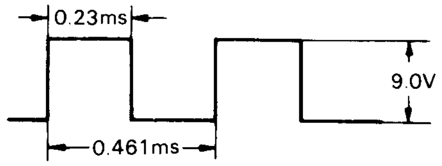
IC602-⑰ (REC)

3



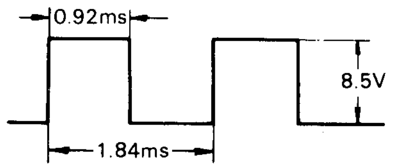
IC602-㉔ (REC/PLAY)

4


0.23ms
9.0V
0.461ms

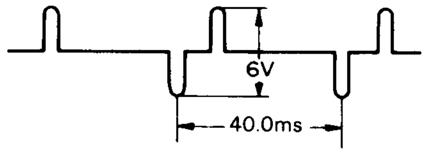
IC602-㉘ (REC/PLAY)

5


0.92ms
8.5V
1.84ms

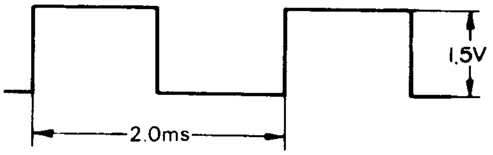
IC602-① (REC/PLAY)

6



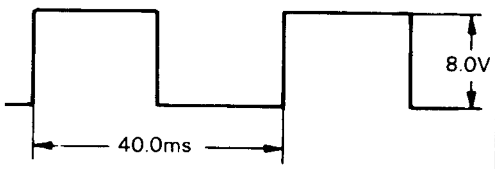
IC601-⑦ (REC)

7



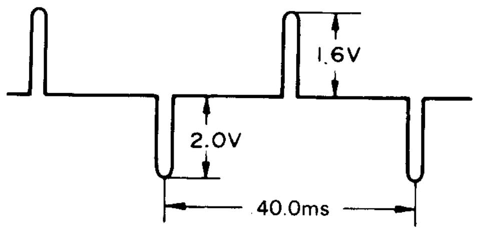
IC602-⑤ (REC)

8



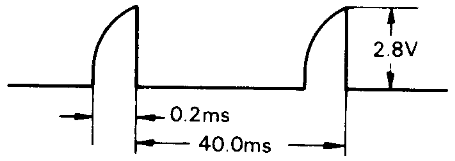
IC602-⑭ (REC/PLAY)

9


1.6V
2.0V
40.0ms

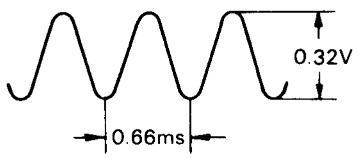
IC602-⑬ (REC/PLAY)

10


2.8V
0.2ms
40.0ms

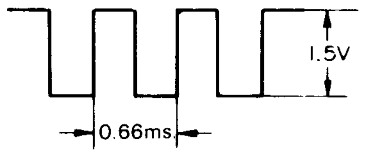
IC602-⑪
IC602-⑫ (REC/PLAY)

11



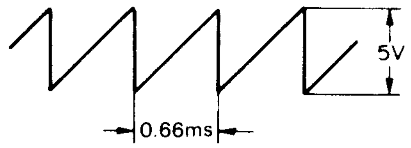
IC603-⑨ (REC/PLAY)

12



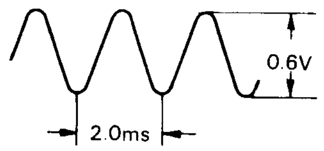
IC603-⑪ (REC/PLAY)

13



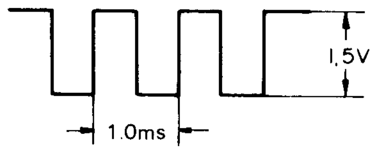
IC603-② (REC/PLAY)

14



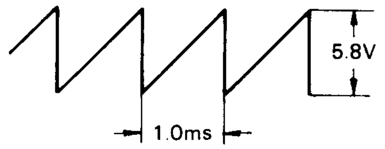
IC604-⑨ (REC/PLAY)

15



IC604-⑪ (REC/PLAY)

16



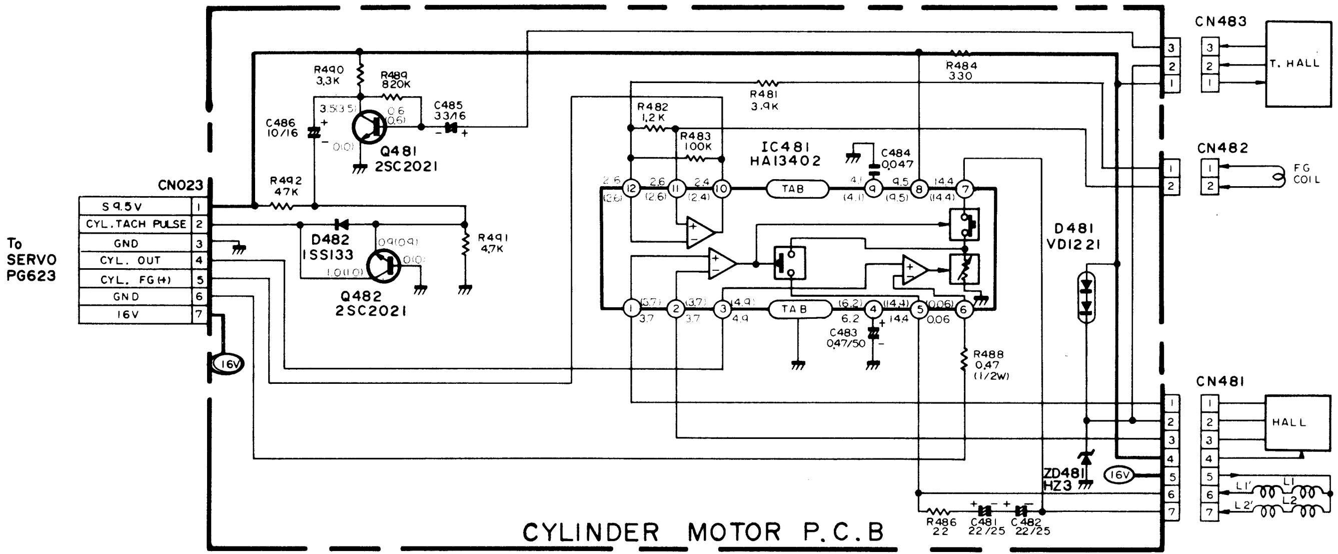
IC604-② (REC/PLAY)

CYLINDER MOTOR

A

B

C


To
SERVO
PG623
CN023
S9.5V
CYL.TACH PULSE
GND
CYL. OUT
CYL. FG(+)
GND
16V
1
2
3
4
5
6
7
16V
R490
3.3K
R489
820K
C486
10/16
3.5(3.5)
0.6
(0.6)
0(0)
C485
33/16
Q481
2SC2021
R492
47K
D482
1SS133
0.9(0.9)
0(0)
1.0(1.0)
Q482
2SC2021
R491
4.7K
R482
1.2K
R481
3.9K
R483
100K
IC481
HA13402
C484
0.047
R484
330
2.6
(2.6)
2.6
(2.6)
2.4
(2.4)
12
11
10
TAB
4.1
(4.1)
9
9.5
(9.5)
8
14.4
(14.4)
7
1
(3.7)
3.7
2
(3.7)
3.7
3
(4.9)
4.9
TAB
(6.2)
6.2
4
(14.4)
14.4
5
(0.06)
0.06
6
C483
0.47/50
R488
0.47
(1/2W)
D481
VD1221
ZD481
HZ3
16V
R486
22
C481
22/25
C482
22/25
CYLINDER MOTOR P.C.B
CN483
3
2
1
T. HALL
CN482
1
2
FG
COIL
CN481
1
2
3
4
5
6
7
HALL
L1'
L1
L2'
L2

※ VOLTAGES ARE MEASURED IN PLAY MODE AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

D

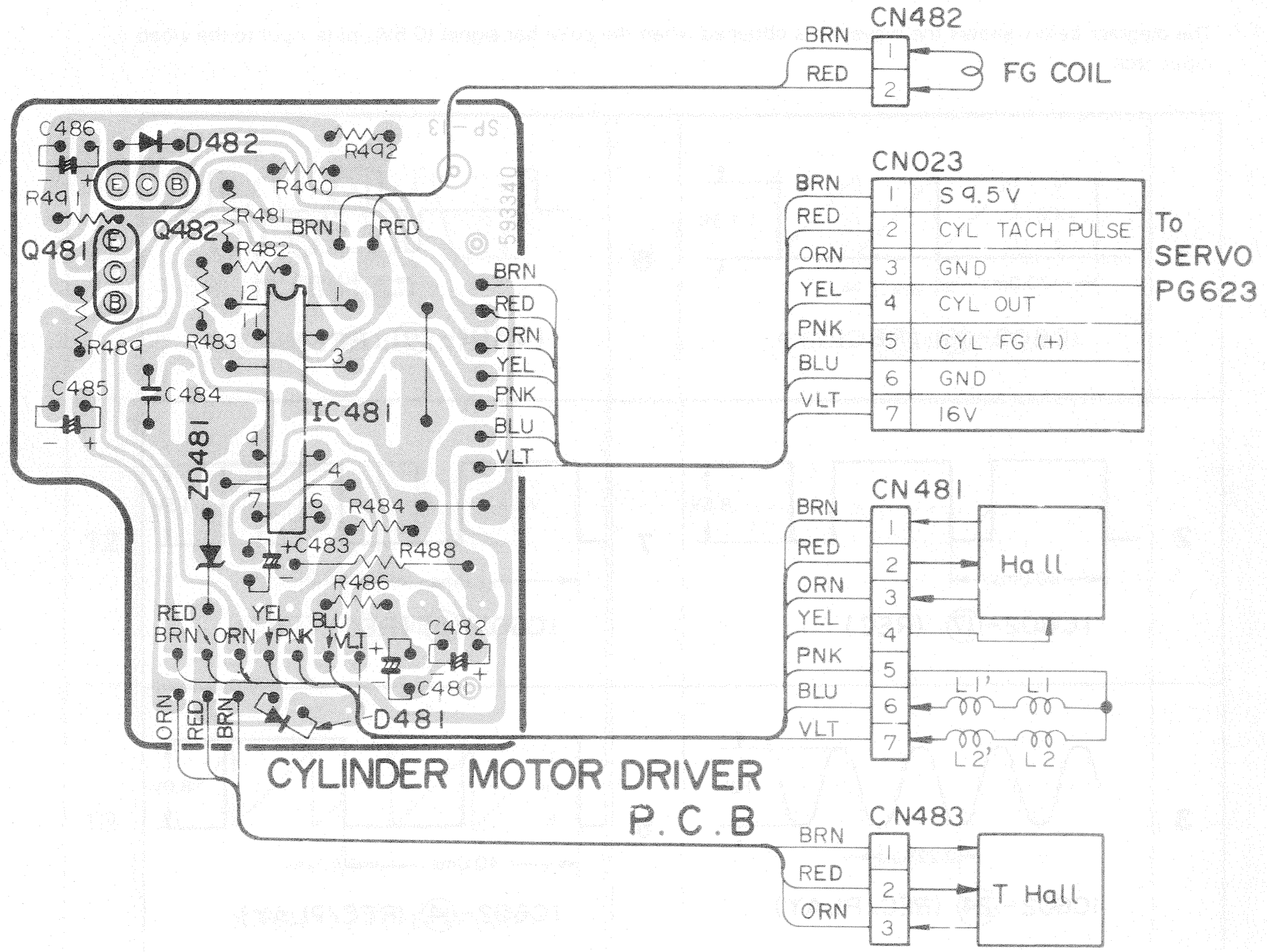
E

F

G

H

1 2 3 4 5 6


CN482
BRN
RED
1
2
FG COIL
CN023
BRN
RED
ORN
YEL
PNK
BLU
VLT
1
2
3
4
5
6
7
S9.5V
CYL TACH PULSE
GND
CYL OUT
CYL FG (+)
GND
16V
To
SERVO
PG623
CN481
BRN
RED
ORN
YEL
PNK
BLU
VLT
1
2
3
4
5
6
7
Hall
L1'
L1
L2'
L2
CN483
BRN
RED
ORN
1
2
3
T Hall
C486
D482
R492
R491
R490
Q481
Q482
R481
R482
BRN
RED
E
C
B
R489
R483
12
11
1
3
IC481
C485
C484
ZD481
9
4
7
6
R484
C483
R488
R486
RED
BRN
ORN
YEL
PNK
BLU
VLT
C482
C481
D481
ORN
RED
BRN
BRN
RED
ORN
YEL
PNK
BLU
VLT
593340
CYLINDER MOTOR DRIVER
P.C.B

7 8 9 10 11 12 13

SYSTEM CONTROL/SERVO

PG618

1	SW 25Hz
2	FSC IN
3	SYNC IN
4	GND

To
Y/CHROMA
PG 018

PG605

1	DFG

PG602(TP610)

1	SW 25Hz

PG603(TP611)

1	GND

PG604

1	CFG

PG623

7	16V
6	GND (M)
5	CYL. FG(+)
4	CYL. OUT
3	GND
2	CYL.TACH PULSE
1	9.5V

To
CYLINDER MOTOR
CN023

PG601

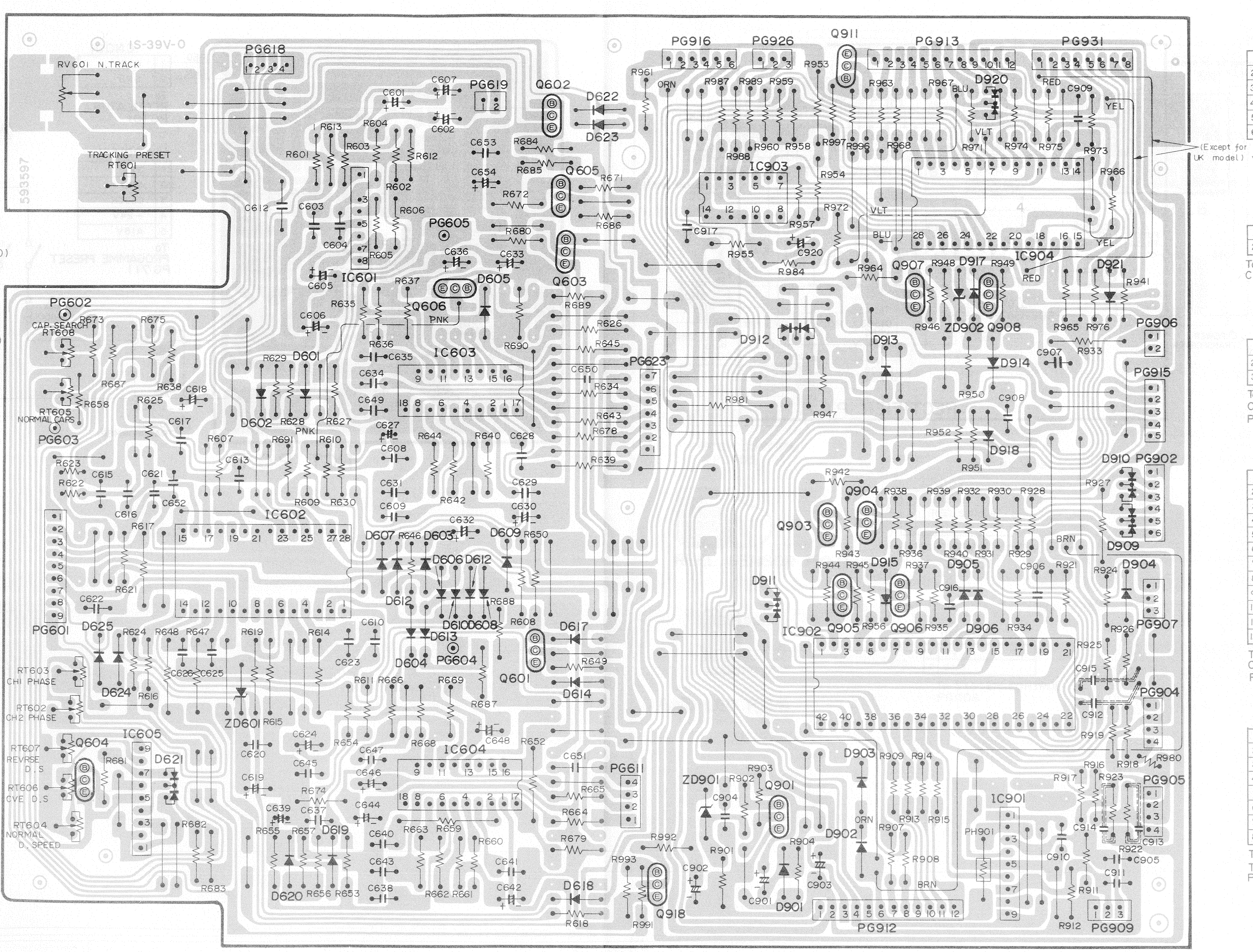
1	CTL.OUT(TP601)
2	FREE RUN(TP602)
3	CYL.SPEED(TP603)
4	GND (TP604)
5	GND (TP605)
6	CAPS.SPEED(TP606)
7	9.5V (TP607)
8	REF.ADJ (TP608)
9	SW 25(TP609)

TEST POINT

PG611

4	GND (S)
3	CFG (−)
2	CFG (+)
1	CAPSTAN OUT

To
REGULATOR
PG111


IS-39V-0
593597
RV601 N.TRACK
TRACKING PRESET
RT601
PG618
PG619
PG605
PG602
CAP. SEARCH RT608
RT605 NORMAL CAPS
PG603
PG601
PG604
PG623
PG611
IC601
IC602
IC603
IC604
IC605
Q601
Q602
Q603
Q604
Q605
Q606
RT603 CH1 PHASE
RT602 CH2 PHASE
RT607 REVRSE D.S
RT606 CVE D.S
RT604 NORMAL D. SPEED
PG916
PG926
Q911
PG913
PG931
IC903
IC904
IC902
IC901
PH901
PG906
PG915
PG902
PG907
PG904
PG905
PG909
PG912
Q901
Q903
Q904
Q905
Q906
Q907
Q908
Q918
(Except for UK model)

PG916

1	A 18V
2	REC + DUB
3	A12V
4	REMOTE
5	C. PAUSE
6	PB 12V

To
Y CHROMA
PG016

PG619

1	CTL PULSE
2	GND

To
CTL HEAD

PG926

1	F.F. IND.
2	REW. IND.
3	STOP. IND.

To
OPERATION SWITCH
PG2014

PG913

1	IND CONTROL
2	TIM. IND.
3	POWER IND.
4	REC IND.
5	PAUSE IND.
6	PLAY IND.
7	POWER SW.
8	TIM. SW.
9	GND
10	RESET
11	A10V
12	A/D IN

To
OPERATION SWITCH
PG2013

PG931

1	CH DOWN
2	SAFTY
3	GND
4	CH UP
5	TIM. REC
6	MEMORY STOP
7	COUNT. REW
8	REEL SENSOR

To
TIMER
PG101

※VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

SRS P.C.B

B
IA
SE
S
D.
D.
D.
N SWITCH
TROL
D.
D.
.
ID.
ID.
SW.
SW.
N SWITCH
N
C
STOP
REW
OR

PG915

1	REC 9V
2	SPEED PIAY
3	PB 9V
4	MONITOR CUT
5	MUTE

To
Y/CHROMA
PG015

Q604

B	0.6 (0.6)
C	0 (0)
E	0 (0)

Q605

B	0 (0.7)
C	0 (0)
E	0 (0)

Q918

B	0 (0.6)
C	0 (9.0)
E	0 (0)

Q907

B	12 (11.2)
C	0 (11.9)
E	12 (11.9)

Q904

B	— (0.8)
C	9.5 (0.2)
E	0 (0)

Q606

B	0 (0)
C	1.8 (1.8)
E	0 (0)

Q603

B	0 (0)
C	9.5(9.5)
E	0 (0)

Q901

B	9.1 (8.5)
C	5.2 (5.2)
E	0 (0)

Q908

B	4.5 (0.5)
C	0 (0)
E	4.8 (1.2)

Q905

B	8.7 (9.5)
C	9.5 (0)
E	9.5 (9.5)

Q602

B	0 (0)
C	0 (0)
E	4.8 (4.8)

Q601

B	9.6 (9.6)
C	0 (0)
E	9.2 (9.2)

Q911

B	8.0 (8.0)
C	12.0 (12.0)
E	7.5 (7.5)

Q903

B	9.5 (8.7)
C	0 (9.5)
E	9.5 (9.5)

Q906

B	0.8 (—)
C	0.2 (9.5)
E	0 (0)

PG902

1	STOP
2	FF/REW
3	REC/PAUSE
4	REC/PLAY
5	REVERSE
6	GND

To
MECHA STATE
SENSOR
CN002

PG906

1	END LED
2	GND

To
END LED
CN006

PG912

1	A 18V
2	GND
3	12V
4	9.5V
5	16V
6	A 12V
7	CYL. ON
8	POWER CONT
9	SEARCH
10	RM (S)
11	RM (−)
12	RM (+)

To
REGULATOR
PG112

PG907

1	A 12V
2	REEL SENSOR
3	GND

To
REEL SENSOR
CN007

IC903

1	—	8	10.3 (10.2)
2	—	9	10.3 (10.2)
3	—	10	4.1 (4.1)
4	—	11	—
5	—	12	—
6	—	13	—
7	10.6 (10.6)	14	—

IC904

1	—	8	—	15	—	22	—
2	—	9	—	16	—	23	—
3	—	10	—	17	—	24	—
4	—	11	—	18	—	25	—
5	—	12	10.6 (10.6)	19	—	26	—
6	—	13		20	—	27	—
7	—	14	10.6 (10.6)	21	—	28	—

PG904

1	SAFETY
2	A 10V
3	GND
4	HOLDER UP

To
SAFETY SWITCH/
CASSETTE HOLDER
SWITCH
CN004

IC902

1	—	8	—	15	—	22	—	29	—	36	—
2	—	9	—	16	—	23	—	30	—	37	—
3	—	10	—	17	—	24	—	31	—	38	—
4	—	11	—	18	—	25	—	32	—	39	—
5	—	12	—	19	—	26	—	33	—	40	—
6	—	13	—	20	10.6(10.6)	27	—	34	—	41	—
7	—	14	—	21	10.6(10.6)	28	—	35	—	42	—

PG905

1	FWD END
2	A 10V
3	A 10V
4	REWIND END

To
END SENSOR
CN005

IC605

1	0 (0)
2	0 (0)
3	0 (0)
4	2.1 (2.1)
5	0 (0)
6	0 (0)
7	2.6 (2.6)
8	0.8 (0.8)
9	0 (0)

IC602

1	4.8 (4.8)	8	0 (0)	15	8.9 (8.9)	22	0 (0)
2	0 (0)	9	1.6 (1.6)	16	0.2 (0.2)	23	0 (0)
3	3.2 (3.2)	10	1.2 (1.2)	17	0.2 (0.8)	24	2.2 (2.2)
4	2.2 (2.2)	11	0 (0)	18	0 (0)	25	5.4 (5.2)
5	2.2 (2.2)	12	0 (0)	19	0 (0)	26	0 (0)
6	0 (8.1)	13	1.2 (1.2)	20	0 (0)	27	0 (0)
7	0 (0)	14	0 (0)	21	0 (0)	28	4.8 (4.8)

IC604

1	4.6 (4.6)	7	4.8 (4.8)	13	—
2	0.6 (0.6)	8	5.3 (5.3)	14	—
3	4.5 (4.4)	9	5.1 (5.1)	15	—
4	4.6 (4.6)	10	5.1 (5.1)	16	9.5 (9.5)
5	4.6 (4.6)	11	5.1 (5.1)	17	4.8 (4.8)
6	4.4 (4.7)	12	5.1 (5.1)	18	0 (0)

IC603

1	4.6 (4.6)	7	4.6 (4.6)	13	—
2	0.7 (0.7)	8	4.9 4.9	14	—
3	4.4 (4.4)	9	5.2 (5.2)	15	—
4	4.8 (4.8)	10	5.2 (5.2)	16	8.8 (8.8)
5	4.8 (4.8)	11	5.2 (5.2)	17	4.2 (4.2)
6	4.6 (4.6)	12	5.2 (5.2)	18	0 (0)

IC901

1	8.5 (8.5)	4	0.2 (0.2)	7	0.2 (0.2)
2	12 (12)	5	0 (0)	8	12 (12)
3	0.2 (0.2)	6	0.2 (0.2)	9	9.5 (9.5)

PG909

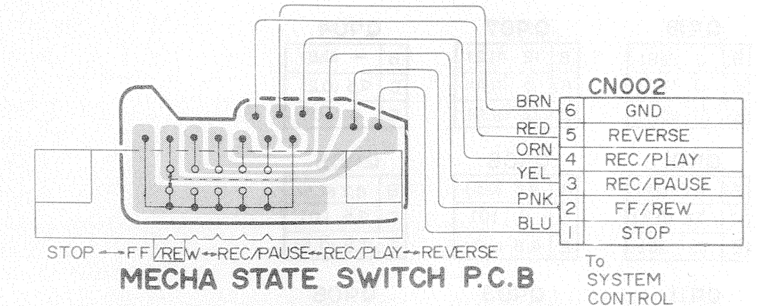
1	GND
2	LOADING
3	UNLOADING

To
LOADING MOTOR
CN009

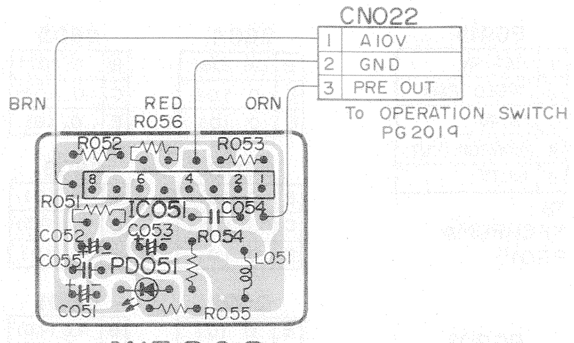
IC601

1	2.0 (0.1)	3	0.6 (0)	5	0 (0.01)	7	4.0 (1.0)
2	—	4	0 (0.01)	6	0.7 (1.1)	8	7.0 (2.0)

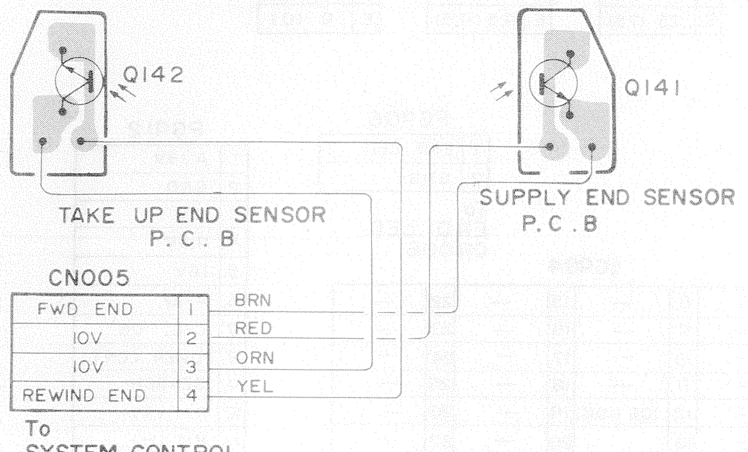
SYSTEM CONTROL CIRCUMFERENCE CIRCUIT BOARD


CN002
BRN 6 GND
RED 5 REVERSE
ORN 4 REC/PLAY
YEL 3 REC/PAUSE
PNK 2 FF/REW
BLU 1 STOP
STOP↔FF/REW↔REC/PAUSE↔REC/PLAY↔REVERSE
To SYSTEM CONTROL PG902

MECHA STATE SWITCH P.C.B


CN022
1 A10V
2 GND
3 PRE OUT
To OPERATION SWITCH PG2019
BRN
RED
ORN
R056
R052
R053
R051
IC051
C054
C052
C053
R054
C055
PD051
L051
C051
R055

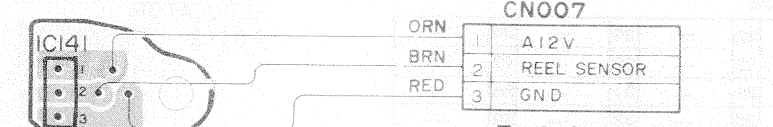
INF P.C.B


Q142
Q141
CN005
FWD END 1 BRN
10V 2 RED
10V 3 ORN
REWIND END 4 YEL
To SYSTEM CONTROL PG905

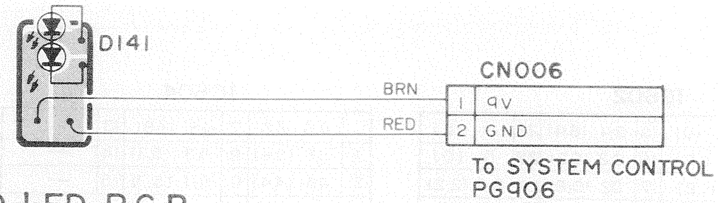
TAKE UP END SENSOR P.C.B

SUPPLY END SENSOR P.C.B

VT-14E. E(BS)

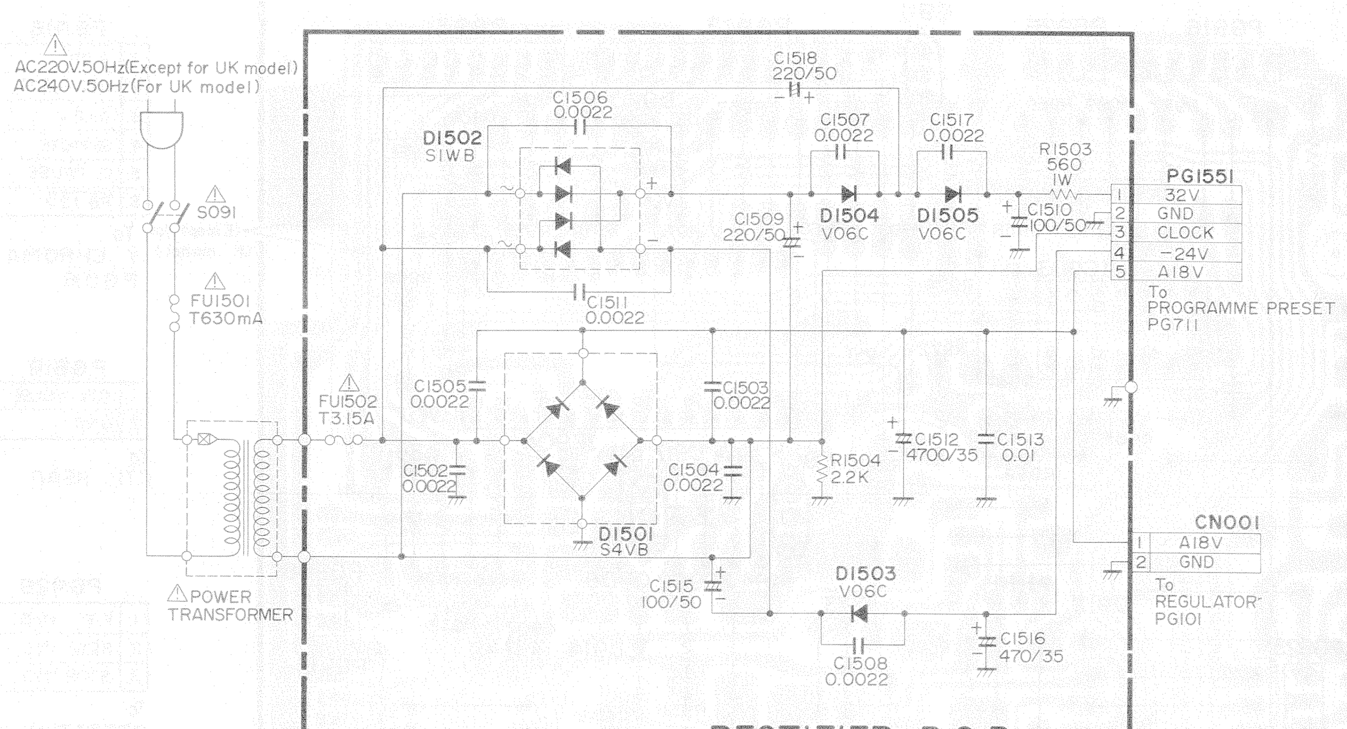

IC141
1
2
3
CN007
ORN 1 A12V
BRN 2 REEL SENSOR
RED 3 GND
To SYSTEM CONTROL PG903

REEL SENSOR P.C.B

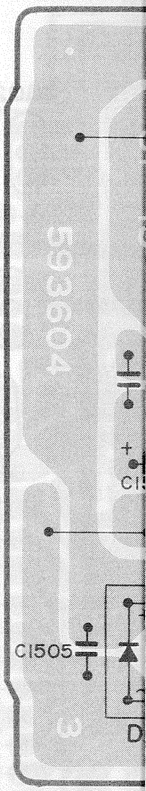

D141
CN006
BRN 1 9V
RED 2 GND
To SYSTEM CONTROL PG906

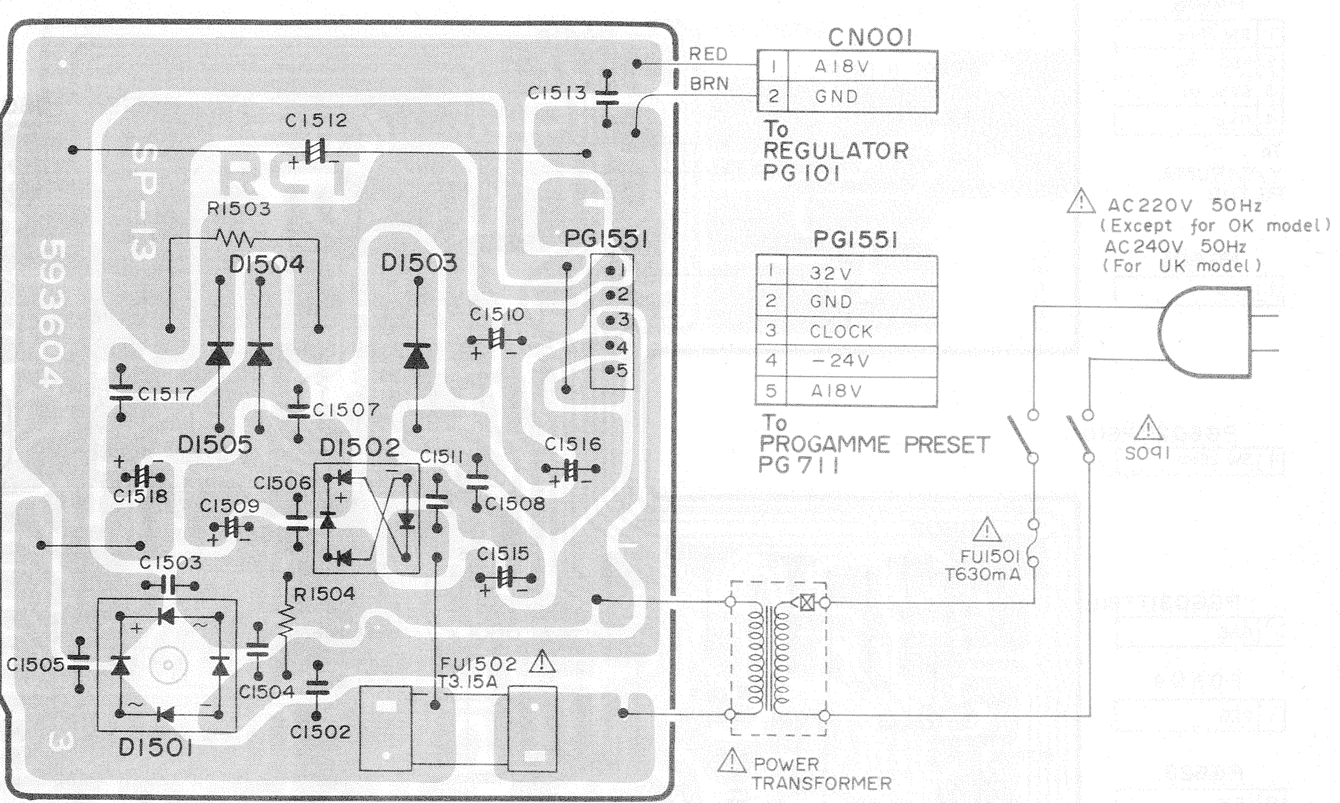
END LED P.C.B

RECTIFIER


AC220V.50Hz(Except for UK model)
AC240V.50Hz(For UK model)
S091
FU1501 T630mA
FU1502 T3.15A
POWER TRANSFORMER
C1518 220/50
C1506 0.0022
C1507 0.0022
C1517 0.0022
R1503 560 1W
D1502 S1WB
C1509 220/50
D1504 V06C
D1505 V06C
C1510 100/50
PG1551
1 32V
2 GND
3 CLOCK
4 -24V
5 A18V
To PROGRAMME PRESET PG711
C1511 0.0022
C1505 0.0022
C1503 0.0022
C1502 0.0022
C1504 0.0022
D1501 S4VB
R1504 2.2K
C1512 4700/35
C1513 0.01
CN001
1 A18V
2 GND
To REGULATOR PG101
C1515 100/50
D1503 V06C
C1508 0.0022
C1516 470/35

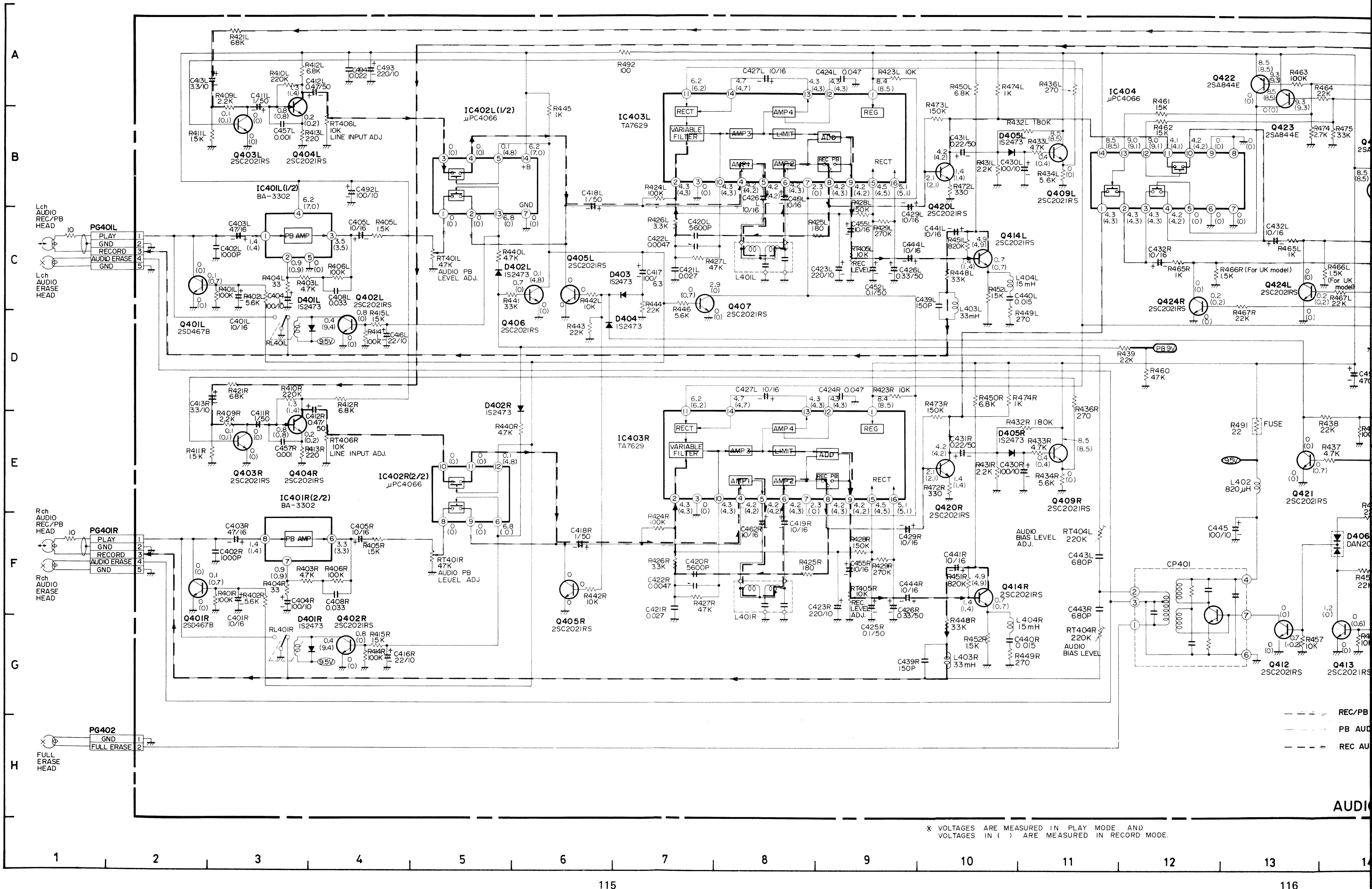
RECTIFIER P.C.B


593604
C15
C1505
3
D

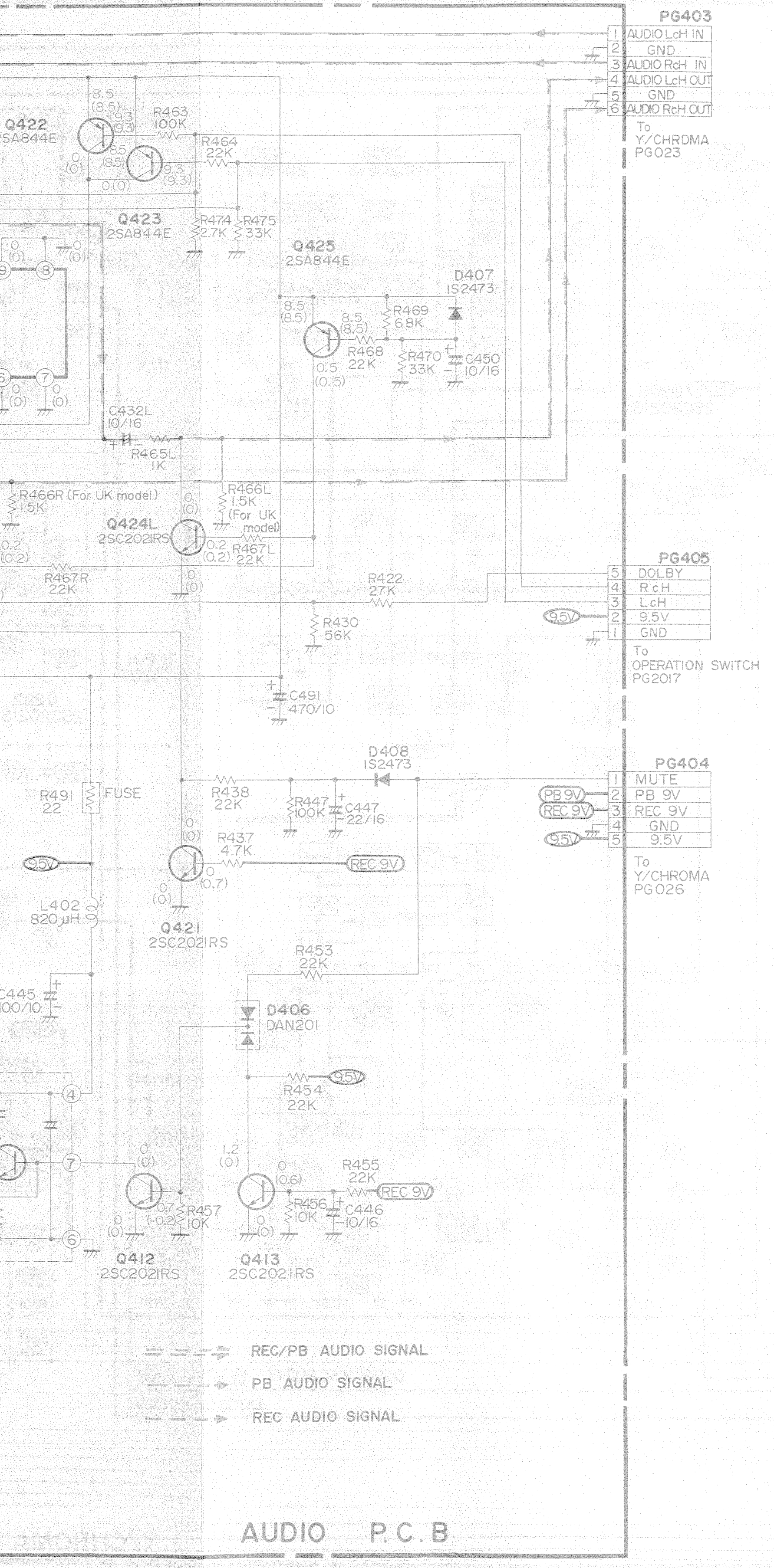

RED
BRN
CN001
1 A18V
2 GND
To
REGULATOR
PG101
C1513
C1512
SP-13
RCT
593604
R1503
D1504
D1503
PG1551
1
2
3
4
5
PG1551
1 32V
2 GND
3 CLOCK
4 −24V
5 A18V
To
PROGAMME PRESET
PG711
AC220V 50Hz
(Except for OK model)
AC240V 50Hz
(For UK model)
C1510
C1517
C1507
D1505
D1502
C1511
C1516
C1518
C1506
C1508
C1509
C1503
R1504
C1515
FU1501
T630mA
C1505
C1504
FU1502
T3.15A
C1502
D1501
3
POWER
TRANSFORMER

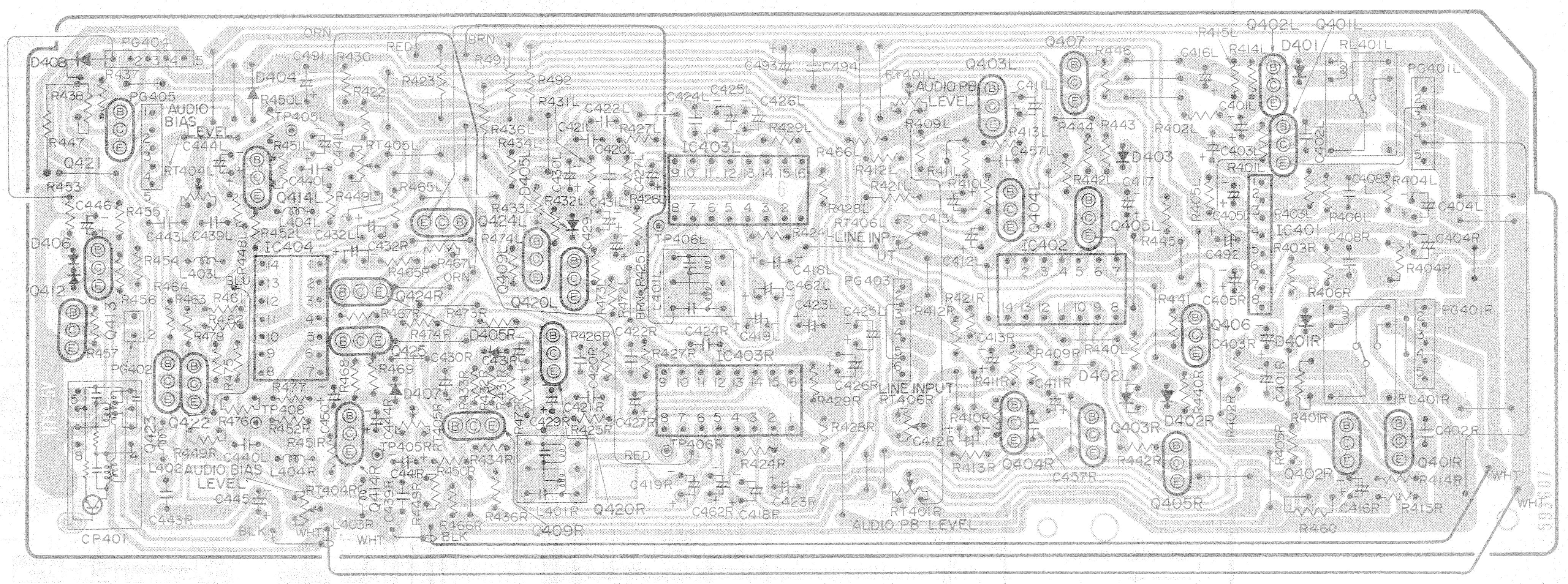
RCT P.C.B

AUDIO


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
13
Lch AUDIO REC/PB HEAD
Lch AUDIO ERASE HEAD
PG401L
PLAY
GND
RECORD
AUDIO ERASE
GND
Rch AUDIO REC/PB HEAD
Rch AUDIO ERASE HEAD
PG401R
PG402
FULL ERASE
FULL ERASE HEAD
IC401L(1/2) BA-3302
IC401R(2/2) BA-3302
PB AMP
IC402L(1/2) μPC4066
IC402R(2/2) μPC4066
+B
GND
IC403L TA7629
IC403R TA7629
RECT
VARIABLE FILTER
AMP1
AMP2
AMP3
AMP4
LIMIT
ADD
REC PB
REG
IC404 μPC4066
Q401L 2SD467B
Q401R 2SD467B
Q402L 2SC2021RS
Q402R 2SC2021RS
Q403L 2SC2021RS
Q403R 2SC2021RS
Q404L 2SC2021RS
Q404R 2SC2021RS
Q405L 2SC2021RS
Q405R 2SC2021RS
Q406 2SC2021RS
Q407 2SC2021RS
Q409L 2SC2021RS
Q409R 2SC2021RS
Q412 2SC2021RS
Q413 2SC2021RS
Q414L 2SC2021RS
Q414R 2SC2021RS
Q420L 2SC2021RS
Q420R 2SC2021RS
Q421 2SC2021RS
Q422 2SA844E
Q423 2SA844E
Q424L 2SC2021RS
Q424R 2SC2021RS
D401L 1S2473
D401R 1S2473
D402L 1S2473
D402R 1S2473
D403 1S2473
D404 1S2473
D405L 1S2473
D405R 1S2473
D406 DAN20
RL401L
RL401R
RT406L 10K LINE INPUT ADJ
RT406R 10K LINE INPUT ADJ.
RT401L 47K AUDIO PB LEVEL ADJ.
RT401R 47K AUDIO PB LEUEL ADJ
RT405L 10K REC LEVEL ADJ.
RT405R 10K REC LEVEL ADJ.
RT404L 220K AUDIO BIAS LEVEL ADJ.
RT404R 220K AUDIO BIAS LEVEL
L401L
L401R
L403L 33mH
L403R 33mH
L404L 15mH
L404R 15mH
L402 820μH
R491 22 FUSE
CP401
PB 9V
9.5V
R466R (For UK model) 1.5K
R466L 1.5K (For UK model)
R492 100
R439 22K
R460 47K
C445 100/10
REC/PB
PB AUD
REC AU
AUDI

※ VOLTAGES ARE MEASURED IN PLAY MODE AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.


PG403
1 AUDIO LcH IN
2 GND
3 AUDIO RcH IN
4 AUDIO LcH OUT
5 GND
6 AUDIO RcH OUT
To Y/CHROMA PG023
Q422 2SA844E
Q423 2SA844E
Q425 2SA844E
D407 1S2473
Q424L 2SC2021RS
R466R (For UK model)
R466L 1.5K (For UK model)
PG405
5 DOLBY
4 RcH
3 LcH
2 9.5V
1 GND
To OPERATION SWITCH PG2017
C491 470/10
D408 1S2473
R491 22 FUSE
PG404
1 MUTE
2 PB 9V
3 REC 9V
4 GND
5 9.5V
To Y/CHROMA PG026
Q421 2SC2021RS
L402 820μH
D406 DAN201
Q412 2SC2021RS
Q413 2SC2021RS
REC/PB AUDIO SIGNAL
PB AUDIO SIGNAL
REC AUDIO SIGNAL
AUDIO P.C.B


PG404
PG405
AUDIO BIAS LEVEL
IC404
IC403L
IC403R
IC402
IC401
PG401L
PG401R
PG402
PG403
AUDIO PB LEVEL
LINE INPUT
CP401
HTK-5V

※VOLTAGES ARE MEASURED IN PLAY MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

PG401L,R

1	PLAY
2	GND
3	RECORD
4	AUDIO ERASE
5	GND

To
L, R cH
REC/PB, ERASE
HEAD

PG404

1	MUTE
2	PB 9V
3	REC9V
4	GND
5	9.5V

To
Y/CHROMA
PG 026

PG402

1	GND
2	FULL ERASE

To
FULL ERASE
HEAD

PG405

1	GND
2	9.5V
3	DOLBY
4	R cH
5	L cH

To
OPERATION SWITCH
PG 2017

PG403

1	AUDIO L cH IN
2	GND
3	AUDIO RcH IN
4	AUDIO L cH OUT
5	GND
6	AUDIO RcH OUT

To
Y/CHROMA
PG 023

IC401

1	1.4 (1.4)
2	0.9(0.9)
3	3.5(3.5)
4	6.2(7.0)
5	0(0)
6	3.3(3.3)
7	0.9(0.9)
8	1.4(1.4)

IC402

1	0(0)
2	0 (0)
3	0 (0)
4	0 (0)
5	0.1 (4.8)
6	6.8(0)
7	0(0)
8	0 (0)
9	0 (0)
10	0 (0)
11	0 (0)
12	0.1 (4.8)
13	6.8(0)
14	6.2(7.0)

IC403L,R

1	8.4(8.5)
2	4.3(4.3)
3	0(0)
4	4.2(4.2)
5	4.2(4.2)
6	4.2(4.3)
7	2.3 (0)
8	4.2(4.3)
9	4.2 (4.2)
10	4.3(4.3)
11	6.2(6.2)
12	4.3(4.3)
13	4.3 (4.3)
14	4.7(4.7)
15	4.5(4.5)
16	5.1(5.1)

IC404

1	4.3(4.3)
2	4.3(4.3)
3	4.3(4.3)
4	4.2 (4.2)
5	0(0)
6	0(0)
7	0(0)
8	0(0)
9	0(0)
10	4.2(4.2)
11	4.1(4.1)
12	9.0(9.1)
13	9.0(9.1)
14	8.5(8.5)

Q401L,R

B	0.1(0.7)
C	0 (0)
E	0 (0)

Q402L,R

B	0.8(0)
C	0.4(9.4)
E	0(0)

Q403L,R

B	0.1(0.1)
C	0 (0)
E	0 (0)

Q404L,R

B	0.8(0.8)
C	1.3 (1.4)
E	0.2(0.2)

Q405L,R

B	0
C	0
E	0

Q406

B	0.7(0)
C	0.1 (4.8)
E	0(0)

Q407

B	0 (0.7)
C	2.9(0)
E	0 (0)

Q409L,R

B	0.4(0.4)
C	8.5(8.5)
E	0 (0)

Q412

B	0.7(-0.2)
C	0 (0)
E	0 (0)

Q413

B	0 (0.6)
C	1.2(0)
E	0 (0)

Q414L,R

B	1.4 (1.4)
C	4.9(4.9)
E	0.7(0.7)

Q420L,R

B	2.1(2.1)
C	4.2(4.2)
E	1.4 (1.4)

Q421

B	0(0.7)
C	0 (0)
E	0 (0)

Q422

B	9.3(9.3)
C	0 (0)
E	8.5(8.5)

Q423

B	9.3(9.3)
C	0 (0)
E	8.5(8.5)

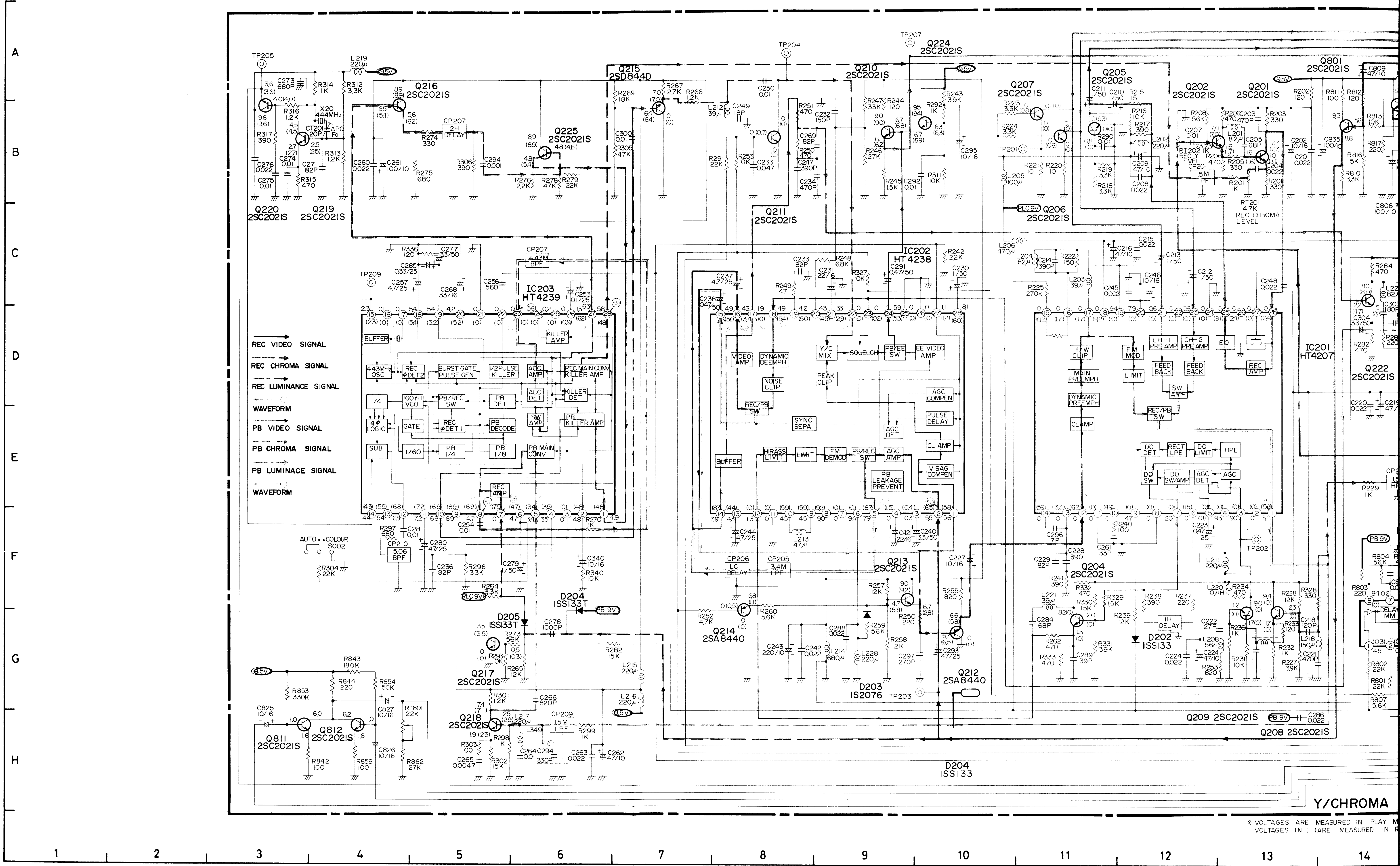
Q424L,R

B	0.2(0.2)
C	0(0)
E	0(0)

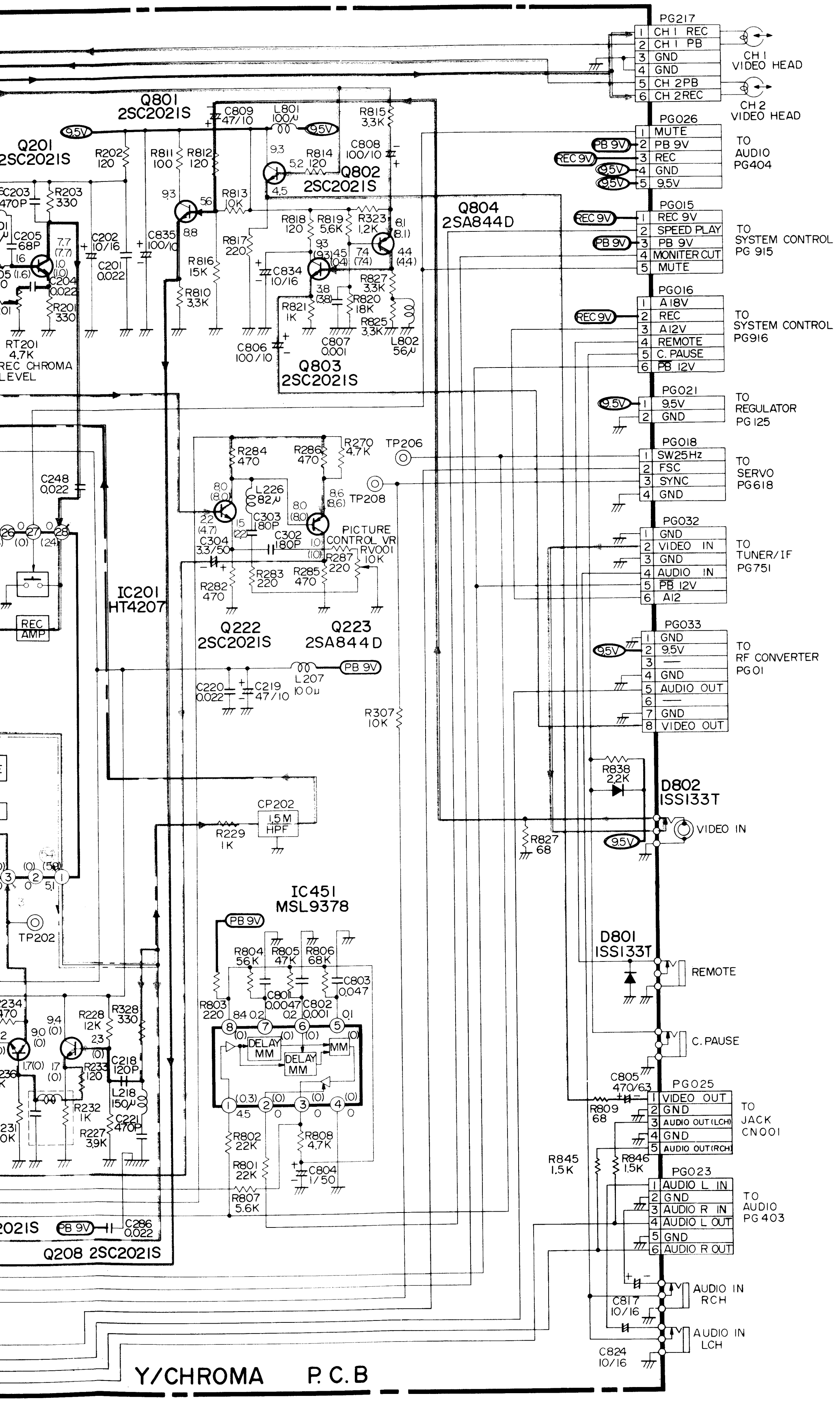
Q425

B	8.5(8.5)
C	0.5(0.5)
E	8.5(8.5)

Y/CHROMA[For UK model]


A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
13
14
TP205
TP204
TP207
TP209
TP201
TP202
TP203
Q220 2SC2021S
Q219 2SC2021S
Q216 2SC2021S
Q225 2SC2021S
Q215 2SD844D
Q210 2SC2021S
Q224 2SC2021S
Q211 2SC2021S
Q207 2SC2021S
Q205 2SC2021S
Q206 2SC2021S
Q202 2SC2021S
Q201 2SC2021S
Q801 2SC2021S
Q222 2SC2021S
Q213 2SC2021S
Q214 2SA844O
Q212 2SA844O
Q204 2SC2021S
Q209 2SC2021S
Q208 2SC2021S
Q217 2SC2021S
Q218 2SC2021S
Q811 2SC2021S
Q812 2SC2021S
D205 1SS133T
D204 1SS133T
D204 1SS133
D203 1S2076
D202 1SS133
X201 4.43MHz
CP207 2H DELAY
CP207 4.43M BPF
CP210 5.06 BPF
CP206 LC DELAY
CP205 3.4M LPF
CP209 1.5M LPF
CP201 1.5M LPF
IC203 HT4239
IC202 HT4238
IC201 HT4207
RT201 4.7K REC CHROMA LEVEL
RT202 1K REC Y LEVEL
RT801 22K
AUTO ↔ COLOUR S002
9.5V
REC 9V
PB 9V
REC VIDEO SIGNAL
REC CHROMA SIGNAL
REC LUMINANCE SIGNAL
WAVEFORM
PB VIDEO SIGNAL
PB CHROMA SIGNAL
PB LUMINACE SIGNAL
WAVEFORM
BUFFER
4.43MHz OSC
REC φDET2
BURST GATE PULSE GEN
1/2 PULSE KILLER
AGC AMP
REC MAIN CONV KILLER AMP
KILLER AMP
1/4
160fH VCO
PB/REC SW
PB DET
ACC DET
KILLER DET
4φ LOGIC
GATE
REC φDET1
PB DECODE
SW AMP
PB KILLER AMP
SUB
1/60
PB 1/4
PB 1/8
PB MAIN CONV
REC AMP
VIDEO AMP
DYNAMIC DEEMPH
NOISE CLIP
REC/PB SW
Y/C MIX
SQUELCH
PB/EE SW
EE VIDEO AMP
PEAK CLIP
AGC COMPEN
PULSE DELAY
SYNC SEPA
AGC DET
CL AMP
HIPASS LIMIT
LIMIT
FM DEMOD
PB/REC SW
AGC AMP
V SAG COMPEN
PB LEAKAGE PREVENT
f/W CLIP
FM MOD
CH-1 PRE AMP
CH-2 PRE AMP
EQ
REC AMP
MAIN PREEMPH
LIMIT
FEED BACK
FEED BACK
SW AMP
DYNAMIC PREEMPH
REC/PB SW
CLAMP
DO DET
RECT LPE
DO LIMIT
HPE
DO SW
DO SW/AMP
AGC DET
AGC
1H DELAY
Y/CHROMA

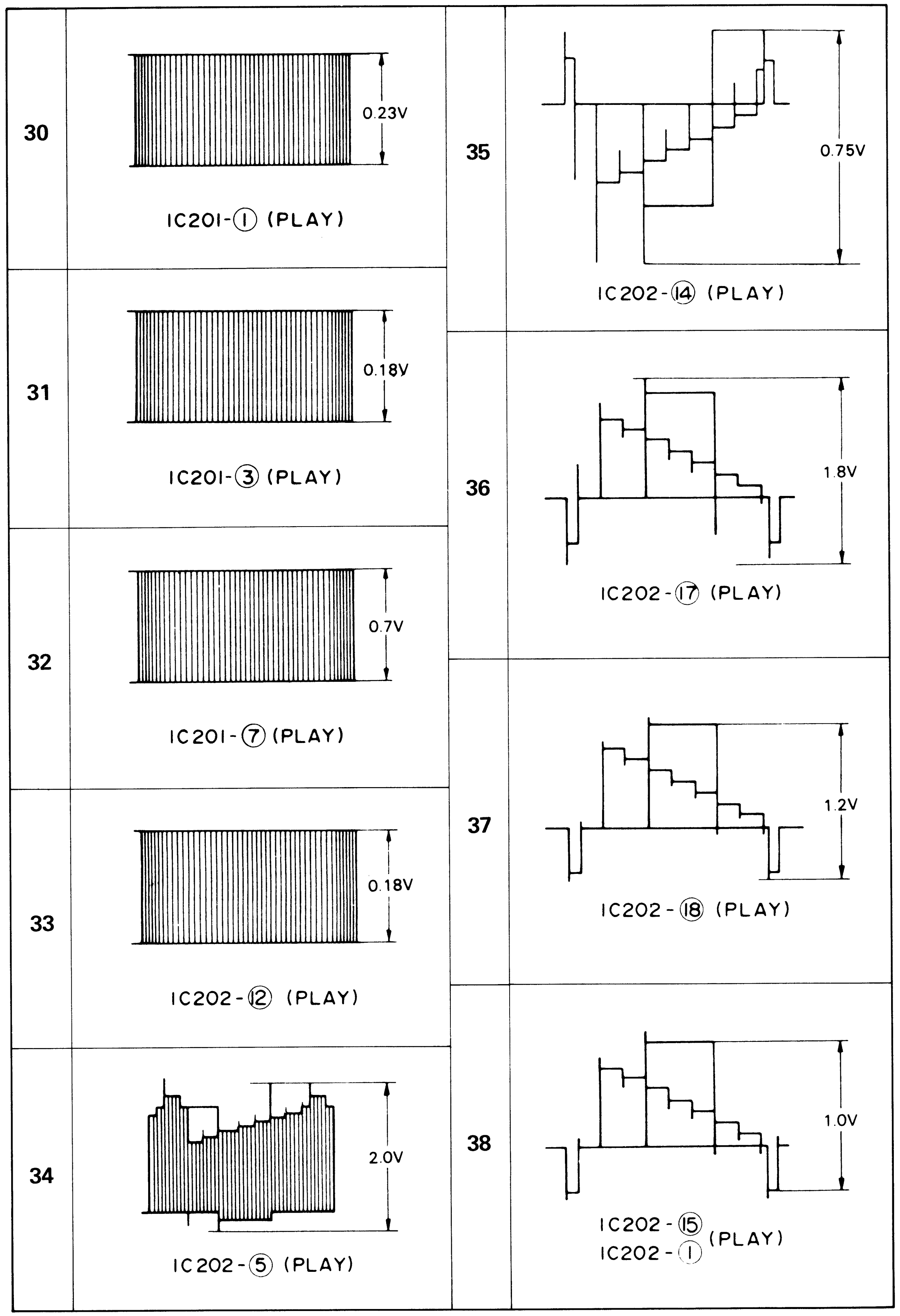
※ VOLTAGES ARE MEASURED IN PLAY M
VOLTAGES IN ( ) ARE MEASURED IN R

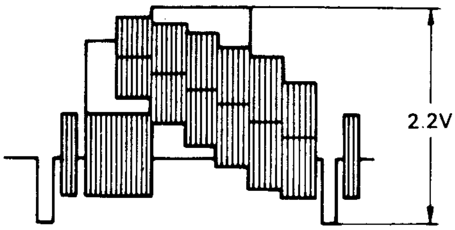
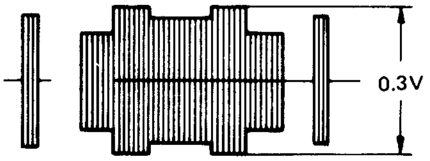
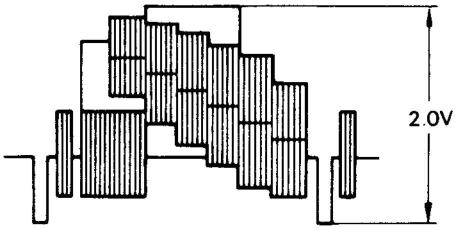
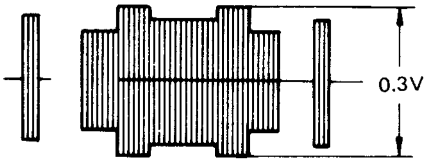
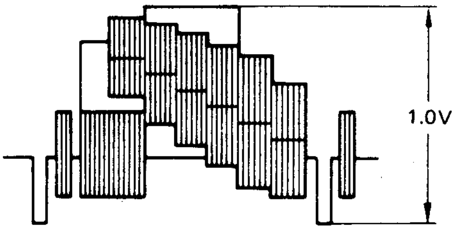
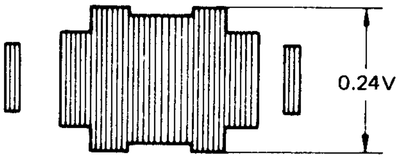
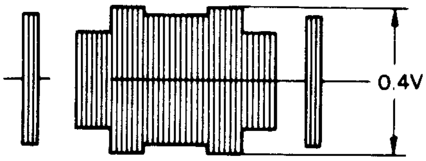
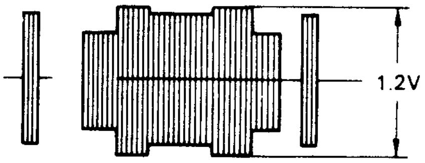

PG217
1 CH1 REC
2 CH1 PB
3 GND
4 GND
5 CH 2PB
6 CH 2REC
CH1 VIDEO HEAD
CH2 VIDEO HEAD
PG026
1 MUTE
2 PB 9V
3 REC
4 GND
5 9.5V
TO AUDIO PG404
PG015
1 REC 9V
2 SPEED PLAY
3 PB 9V
4 MONITER CUT
5 MUTE
TO SYSTEM CONTROL PG 915
PG016
1 A18V
2 REC
3 A12V
4 REMOTE
5 C. PAUSE
6 PB 12V
TO SYSTEM CONTROL PG916
PG021
1 9.5V
2 GND
TO REGULATOR PG125
PG018
1 SW25Hz
2 FSC
3 SYNC
4 GND
TO SERVO PG618
PG032
1 GND
2 VIDEO IN
3 GND
4 AUDIO IN
5 PB 12V
6 A12
TO TUNER/IF PG751
PG033
1 GND
2 9.5V
3 —
4 GND
5 AUDIO OUT
6 —
7 GND
8 VIDEO OUT
TO RF CONVERTER PG01
D802 ISS133T
VIDEO IN
D801 ISS133T
REMOTE
C. PAUSE
PG025
1 VIDEO OUT
2 GND
3 AUDIO OUT (LCH)
4 GND
5 AUDIO OUT (RCH)
TO JACK CN001
PG023
1 AUDIO L IN
2 GND
3 AUDIO R IN
4 AUDIO L OUT
5 GND
6 AUDIO R OUT
TO AUDIO PG403
AUDIO IN RCH
AUDIO IN LCH
Q801 2SC2021S
Q802 2SC2021S
Q803 2SC2021S
Q804 2SA844D
Q201 2SC2021S
IC201 HT4207
Q222 2SC2021S
Q223 2SA844D
PICTURE CONTROL VR RV001 10K
TP206
TP208
TP202
CP202 1.5M HPF
IC451 MSL9378
DELAY MM
MM
Q208 2SC2021S
RT201 4.7K REC CHROMA LEVEL
REC AMP
L801 100μ
L802 56μ
L207 10μ
L226 82μ
L218 150μ
9.5V
PB 9V
REC 9V
Y/CHROMA P.C.B

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

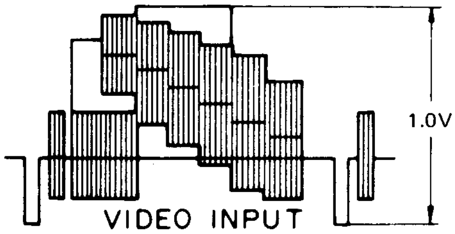
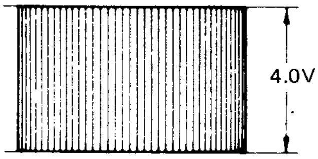
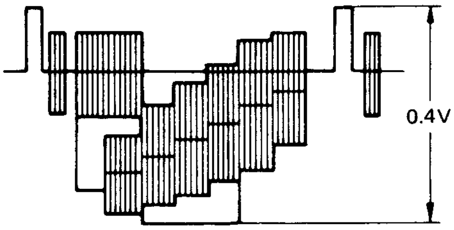
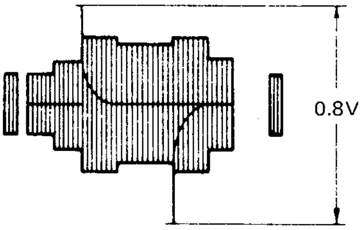
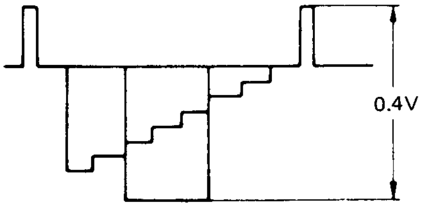
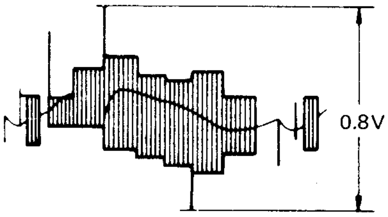
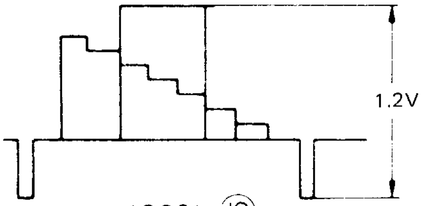
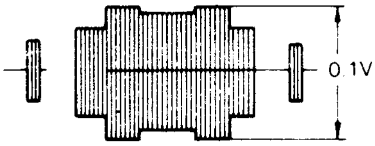
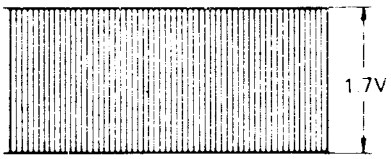
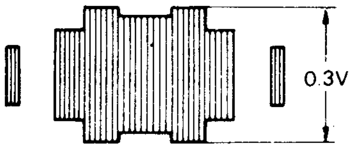
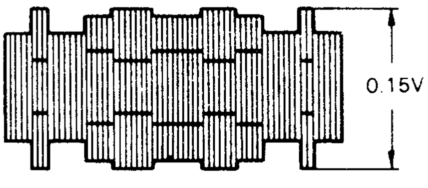
Y·CHROMA CIRCUIT WAVEFORM DIAGRAM

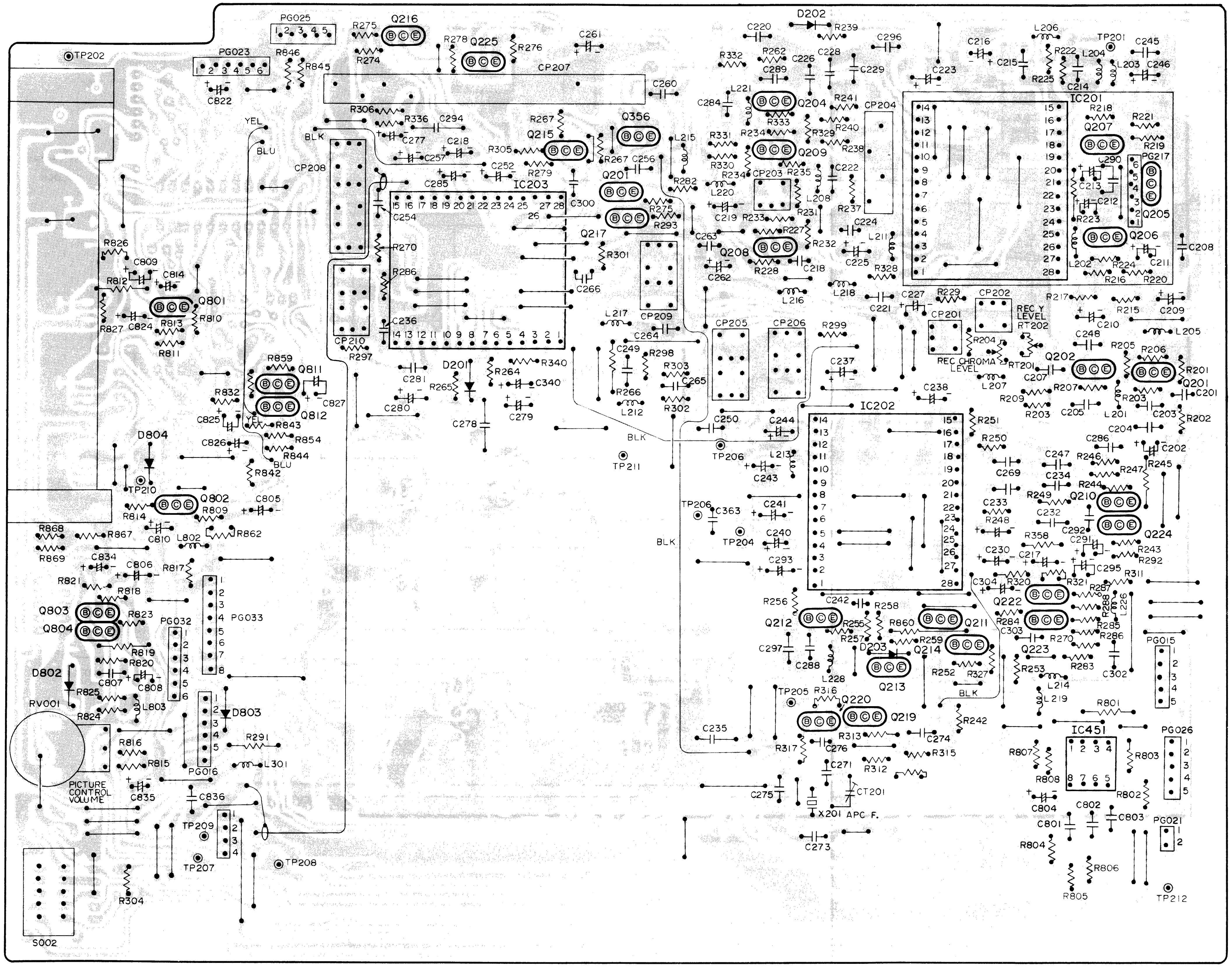
The diagram below shows the waveforms measured in the order of the route of the signal obtained when the color bar signal recorded on the alignment tape is played back. The FM signal measured at the TV-V (1ms/div) position and the other signals, at the TV-H (20μs/div) position.


30
0.23V
IC201-① (PLAY)
31
0.18V
IC201-③ (PLAY)
32
0.7V
IC201-⑦ (PLAY)
33
0.18V
IC202-⑫ (PLAY)
34
2.0V
IC202-⑤ (PLAY)
35
0.75V
IC202-⑭ (PLAY)
36
1.8V
IC202-⑰ (PLAY)
37
1.2V
IC202-⑱ (PLAY)
38
1.0V
IC202-⑮ IC202-① (PLAY)

39	 IC202-㉔ (PLAY)	**44**	 IC203-㉓ (PLAY)
40	 VIDEO OUT(PLAY)	**45**	 IC203-㉗(PLAY)
41	 RF VIDEO OUT (PG 033 ⑧)(PLAY)	**47**	 IC202-㉒ (PLAY)
42	 IC203-⑤ (PLAY)		
43	 IC203-⑧ (PLAY)		

The diagram below shows the waveforms measured in the order of the route of the signal obtained when the color bar signal (1.0Vp-p) is input to the video input jack and recorded in the LP mode. The FM signal is measured at the TV-V (1 ms/div) position, and the other signals, at the TV-H (20μs/div) position.

50	 VIDEO INPUT IC202-② (REC)	55	 IC201-㉕ (REC)
51	 IC202-⑤ (REC)	56	 IC203-⑦ (REC)
52	 IC202-⑯ (REC)	57	 IC203-⑧ (REC)
53	 IC201-⑫ (REC) IC202-⑮	58	 IC203-㉓ (REC)
54	 IC201-① (REC)	59	 IC203-㉘ (REC)
55	 IC201 - ㉘ (REC)		


PG025
Q216
R275
R274
R278
Q225
R276
C261
CP207
TP202
PG023
R846
R845
C822
C260
D202
C220
R239
C296
C216
L206
TP201
C245
R332
R262
C226
C228
C229
C289
C223
C215
R222
L204
L203
C246
R225
C214
IC201
C284
L221
Q204
R241
CP204
R218
R221
YEL
BLU
BLK
R306
R336
C294
R267
Q356
R333
R240
Q207
R219
Q215
C277
C218
R305
R331
R234
R329
R238
R330
Q209
PG217
C257
R279
R267
C256
L215
C290
CP208
C252
Q201
R234
CP203
R235
C222
C213
C212
Q205
C285
IC203
C300
R282
L220
R208
R237
R223
C254
R275
R293
C219
R233
R231
C224
R227
Q206
C208
Q217
C263
R232
L211
R270
R301
Q208
C225
L202
R224
C211
C262
R228
C218
R328
R216
R220
R826
C809
R286
C266
L216
L218
C814
R812
C221
C227
R229
CP202
R217
R215
C209
Q801
C236
L217
CP209
REC Y LEVEL
RT202
C210
R827
C824
R813
R810
CP210
C264
CP205
CP206
R299
CP201
C248
L205
R811
R297
C249
R298
R204
R205
R206
R859
D201
R264
R340
C237
REC CHROMA LEVEL
RT201
Q202
R201
Q811
C281
R303
C265
L207
C207
R207
Q201
R832
R265
C340
R266
R209
R203
C201
C827
C280
C279
L212
R302
C238
C205
L201
C203
R202
C825
Q812
C278
IC202
R251
C204
R843
C250
C244
C286
C202
D804
C826
R854
TP211
TP206
R250
R246
R247
R844
BLK
L213
C247
R245
R842
C269
C234
TP210
C243
R249
R244
Q802
C805
TP206
C363
C241
C233
Q210
R814
R809
R248
C232
R868
R867
C810
L802
R862
TP204
C240
R358
C292
Q224
R869
C834
BLK
C291
R243
C806
R817
C293
C230
C217
R292
R821
C295
R818
C304
R320
R321
R311
Q803
R823
PG033
R256
C242
R258
Q222
R287
Q804
PG032
Q212
R255
R860
Q211
R284
R288
L226
R819
C297
R257
D203
R259
C303
R285
R270
R286
PG015
R820
C288
Q214
Q223
D802
C807
C808
L228
R252
R327
R253
R283
C302
R825
Q213
L214
RV001
L803
D803
TP205
R316
Q220
BLK
L219
R824
Q219
R242
R801
R816
R291
C235
R313
C274
IC451
PG026
R815
PG016
L301
R317
C276
R315
R807
R803
PICTURE CONTROL VOLUME
C835
C271
R312
R808
C836
CT201
C804
C802
R802
C275
C803
TP209
X201
APC F.
C801
PG021
TP207
TP208
C273
R804
R806
R304
R805
TP212
S002

Y/CHROMA P.C.B

PG023

6	AUDIO R OUT
5	GND
4	AUDIO L OUT
3	AUDIO R IN
2	GND
1	AUDIO L IN

To
AUDIO
PG403

PG016

1	A 18V
2	REC
3	A12V
4	REMOTE
5	C. PAUSE
6	$\overline{\text{PB}}$ 12V

To
SYSTEM CONTROL
PG916

PG026

1	MUTE
2	PB9V
3	REC
4	GND
5	9.5V

To
AUDIO
PG404

PG025

1	VIDEO OUT
2	GND
3	LCH OUT
4	GND
5	RCH OUT

To
JACK
CN001

PG018

1	SW 25Hz
2	FSC
3	SYNC
4	GND

To
SERVO
PG618

PG021

1	9.5V
2	GND

To
REGULATOR
PG125

PG032

1	GND
2	VIDEO IN
3	GND
4	AUDIO IN
5	$\overline{\text{PB}}$ 12V
6	A 12V

To
TUNER / IF
PG751

PG217

6	CH2 REC
5	CH2 PB
4	GND
3	GND
2	CH1 PB
1	CH1 REC

To
CH1 / CH2
VIDEO HEAD

PG033

1	GND
2	9.5V
3	——
4	GND
5	AUDIO OUT
6	——
7	GND
8	VIDEO OUT

To
RF CONVERTER
PG 01

PG015

1	REC 9V
2	SPEED PLAY
3	PB 9V
4	MONITOR CUT
5	MUTE

To
SYSTEM CONTROL
PG915

Q216

B	6.5 (5.4)
C	8.9 (8.9)
E	5.6 (6.2)

Q225

B	4.8 (4.8)
C	8.9 (8.9)
E	4.8 (5.4)

Q801

B	5.6
C	9.3
E	8.8

Q811

B	1.0
C	6.0
E	1.6

Q812

B	1.0
C	6.2
E	1.6

Q802

B	5.2
C	9.3
E	4.5

Q803

B	4.5 (4.4)
C	9.3 (9.2)
E	3.8 (3.8)

Q804

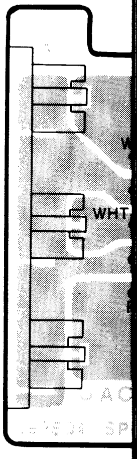
B	7.4 (7.4)
C	4.4 (4.4)
E	8.1 (8.1)

Q215

B	6.4 (6.4)
C	0 (0)
E	7.0 (7.0)

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

JACK PLATE



JACK

PG026

MUTE
PB9V
REC
ND
.5V

IO
04

PG021

.5V
ND

ULATOR
25

ODE.

Q216

B	6.5 (5.4)
C	8.9 (8.9)
E	5.6 (6.2)

Q225

B	4.8 (4.8)
C	8.9 (8.9)
E	4.8 (5.4)

Q801

B	5.6
C	9.3
E	8.8

Q811

B	1.0
C	6.0
E	1.6

Q812

B	1.0
C	6.2
E	1.6

Q802

B	5.2
C	9.3
E	4.5

Q803

B	4.5 (4.4)
C	9.3 (9.2)
E	3.8 (3.8)

Q804

B	7.4 (7.4)
C	4.4 (4.4)
E	8.1 (8.1)

Q215

B	6.4 (6.4)
C	0 (0)
E	7.0 (7.0)

Q218

B	2.5 (2.9)
C	7.4 (7.1)
E	1.9 (2.3)

Q217

B	0.5 (0.3)
C	3.5 (3.5)
E	0 (0)

Q204

B	2.0 (0)
C	8.2 (0)
E	1.3 (0)

Q209

B	1.7 (0)
C	9.0 (0)
E	1.2 (0)

Q208

B	2.3 (0)
C	9.4 (0)
E	1.7 (0)

Q212

B	5.7 (6.5)
C	0 (0)
E	6.6 (5.8)

Q211

B	0 (0.7)
C	0 (0)
E	0 (0)

Q214

B	0 (0.5)
C	0 (0)
E	6.8 (1.1)

Q213

B	4.7 (5.8)
C	9.0 (9.2)
E	6.7 (2.8)

Q220

B	4.0 (4.0)
C	9.6 (9.6)
E	3.6 (3.6)

Q219

B	2.5 (2.5)
C	4.5 (4.5)
E	2.7 (2.7)

Q207

B	0 (0.8)
C	0.1 (0)
E	0 (0)

Q205

B	0.8 (0)
C	0 (9.3)
E	0 (0)

Q206

B	0 (0.8)
C	0.1 (0)
E	0 (0)

Q202

B	2.3 (2.3)
C	7.0 (7.0)
E	1.6 (1.7)

Q201

B	1.6 (1.6)
C	7.7 (7.7)
E	1.0 (1.0)

Q210

B	6.7 (6.8)
C	9.0 (9.0)
E	6.1 (6.2)

Q222

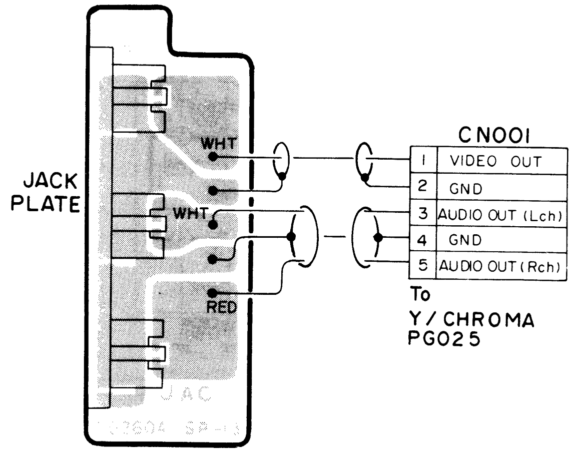
B	2.2 (4.7)
C	8.0 (8.0)
E	1.5 (2.2)

Q224

B	6.3 (6.3)
C	9.5 (9.4)
E	6.7 (6.9)

Q223

B	8.0 (8.0)
C	1.0 (1.0)
E	8.6 (8.6)



JACK P.C.B

MEMO

IC203

1	4.9 (4.8)	2	4.8 (4.8)	3	0 (0)	4	3.5 (3.5)	5	3.4 (3.4)	6	4.7 (4.7)	7	0 (7.5)
8	4.7 (6.9)	9	8.9 (8.9)	10	6.9 (6.9)	11	7.2 (7.2)	12	6.8 (6.8)	13	5.4 (5.5)	14	4.4 (4.3)
15	2.3 (2.3)	16	0.1 (0)	17	0 (0)	18	5.4 (5.4)	19	5.4 (5.2)	20	4.2 (5.2)	21	0 (0)
22	0 (0)	23	0 (0)	24	0.2 (0)	25	0 (0)	26	1.3 (0.9)	27	6.3 (6.2)	28	5.8 (4.8)

IC201

1	5.1 (5.9)	2	0 (0)	3	9.0 (0)	4	9.3 (0)	5	0.8 (0)	6	0 (1.5)	7	2.0 (0)
8	0 (0)	9	4.7 (0)	10	0 (4.9)	11	0 (0)	12	0 (6.2)	13	0 (3.3)	14	0 (5.9)
15	0 (0.2)	16	0 (1.7)	17	0 (1.7)	18	0 (9.2)	19	9.4 (0)	20	7.9 (0)	21	0.6 (0)
22	0 (0)	23	0.6 (0)	24	0 (0)	25	0 (9.1)	26	0 (2.4)	27	0 (0)	28	0 (2.4)

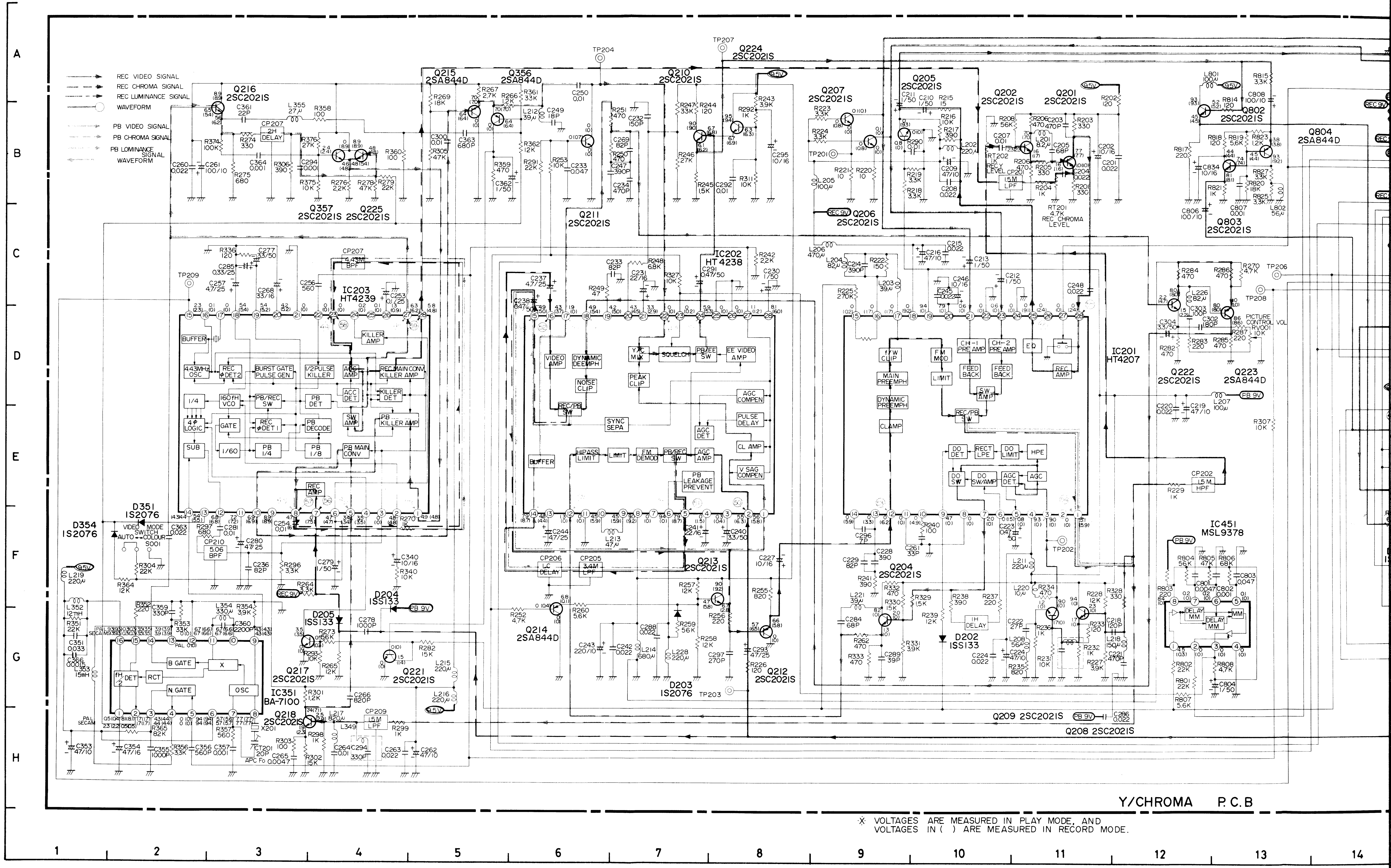
IC202

1	5.6 (5.8)	2	5.5 (6.3)	3	0.3 (0.4)	4	0 (1.5)	5	7.9 (8.7)	6	9.4 (0)	7	0 (0)
8	9.0 (9.2)	9	4.5 (5.9)	10	4.5 (5.9)	11	0 (0)	12	1.3 (0)	13	4.3 (4.4)	14	7.9 (8.7)
15	4.9 (5.0)	16	4.3 (3.7)	17	1.9 (0)	18	4.9 (5.4)	19	4.2 (5.0)	20	4.3 (4.5)	21	3.3 (2.9)
22	0 (0)	23	0 (0.2)	24	5.9 (5.3)	25	0 (0)	26	0 (0)	27	1.1 (1.2)	28	8.1 (6.0)

IC451

1	4.5 (0.3)	2	0 (0)	3	0 (0)	4	0 (0)
5	0.1 (0)	6	0.2 (0)	7	0.2 (0)	8	8.4 (0)

Y/CHROMA[Except for UK model]


REC VIDEO SIGNAL
REC CHROMA SIGNAL
REC LUMINANCE SIGNAL
WAVEFORM
PB VIDEO SIGNAL
PB CHROMA SIGNAL
PB LOMINANCE SIGNAL WAVEFORM
Q216 2SC2021S
Q215 2SA844D
Q356 2SA844D
Q357 2SC2021S
Q225 2SC2021S
Q211 2SC2021S
Q210 2SC2021S
Q224 2SC2021S
Q207 2SC2021S
Q206 2SC2021S
Q205 2SC2021S
Q202 2SC2021S
Q201 2SC2021S
Q802 2SC2021S
Q803 2SC2021S
Q804 2SA844D
IC203 HT4239
IC202 HT4238
IC201 HT4207
IC351 BA-7100
IC451 MSL9378
Q222 2SC2021S
Q223 2SA844D
Q213 2SC2021S
Q214 2SA844D
Q212 2SC2021S
Q204 2SC2021S
Q217 2SC2021S
Q218 2SC2021S
Q221 2SC2021S
Q209 2SC2021S
Q208 2SC2021S
D351 1S2076
D354 1S2076
D205 ISS133
D204 ISS133
D203 1S2076
D202 ISS133
TP201
TP202
TP203
TP204
TP206
TP207
TP208
TP209
RT201 4.7K REC CHROMA LEVEL
RT202 1K REC LEVEL
RV001 10K PICTURE CONTROL VOL
S001 VIDEO MODE SWITCH AUTO COLOUR
PAL SECAM
BUFFER
4.43MHz OSC
REC φDET2
BURST GATE PULSE GEN
1/2PULSE KILLER
AGC AMP
REC MAIN CONV KILLER AMP
1/4
160fH VCO
PB/REC SW
PB DET
ACC DET
KILLER DET
4φ LOGIC
GATE
REC φDET1
PB DECODE
SW AMP
PB KILLER AMP
SUB
1/60
PB 1/4
PB 1/8
PB MAIN CONV
REC AMP
KILLER AMP
VIDEO AMP
DYNAMIC DEEMPH
NOISE CLIP
REC/PB SW
Y/C MIX
SQUELCH
PB/EE SW
EE VIDEO AMP
PEAK CLIP
SYNC SEPA
AGC COMPEN
AGC DET
PULSE DELAY
CL AMP
V SAG COMPEN
HIPASS LIMIT
LIMIT
FM DEMOD
PB/REC SW
AGC AMP
PB LEAKAGE PREVENT
f/W CLIP
MAIN PREEMPH
DYNAMIC PREEMPH
CLAMP
FM MOD
CH-1 PRE AMP
CH-2 PRE AMP
EQ
FEED BACK
REC AMP
DO DET
RECT LPE
DO LIMIT
HPE
DO SW
DO SW/AMP
AGC DET
AGC
fH/2 DET
RCT
B GATE
X
N.GATE
OSC
DELAY MM
MM
CP207 2H DELAY
CP207 4.43M BPF
CP210 5.06 BPF
CP206 LC DELAY
CP205 3.4M LPF
CP209 1.5M LPF
CP201 1.5M LPF
CP202 1.5M HPF
1H DELAY
X201
CT201 20P APC Fo
REC 9V
PB 9V
9.5V
Y/CHROMA P.C.B
A
B
C
D
E
F
G
H
1
2
3
4
5
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8
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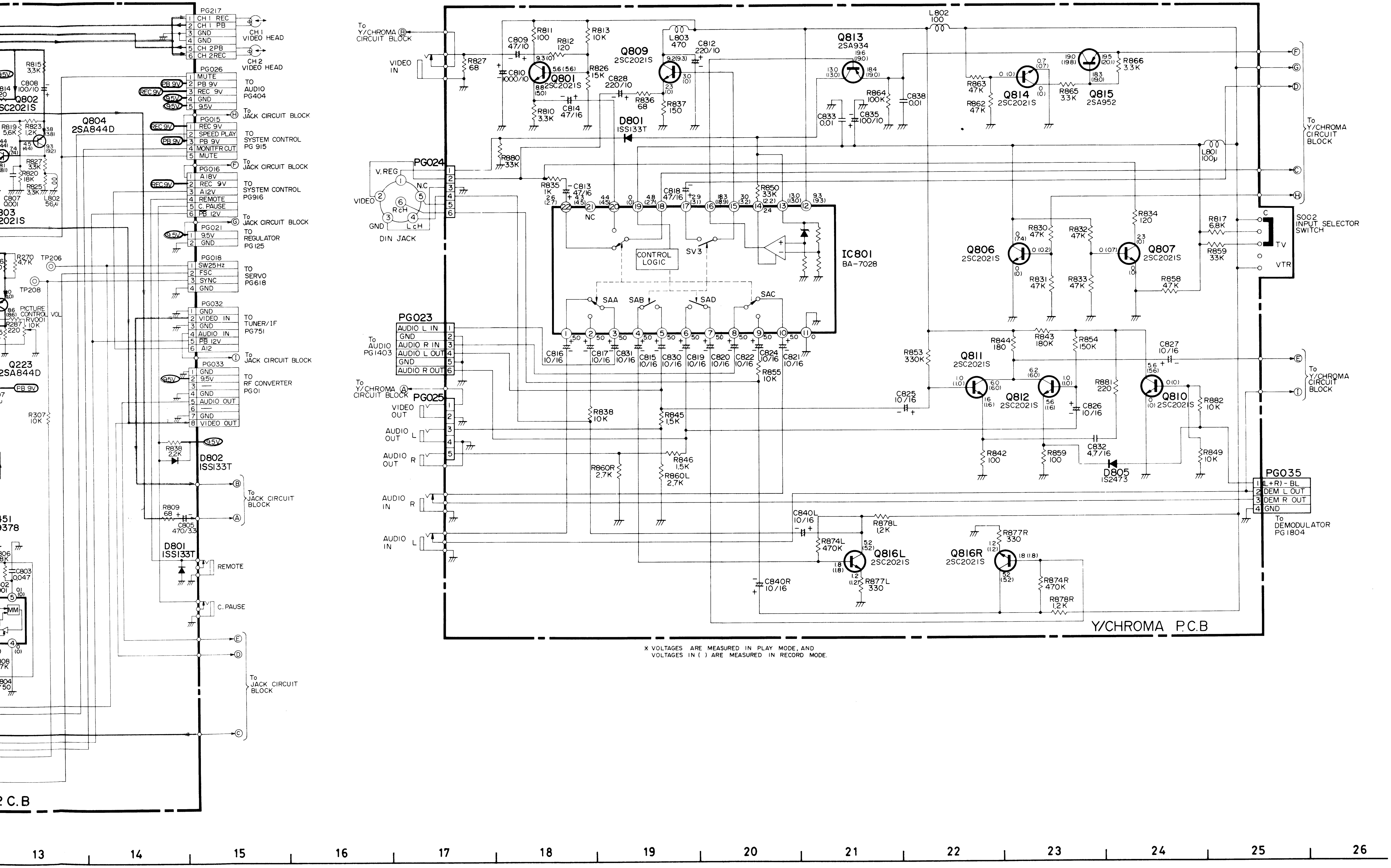
12
13
14

※ VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

JACK[Except for UK model]

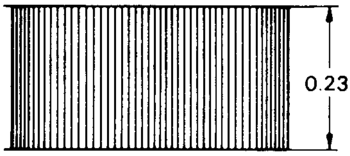

PG217
CH1 REC
CH1 PB
GND
CH 2PB
CH 2REC
CH1 VIDEO HEAD
CH2 VIDEO HEAD
PG026
MUTE
PB 9V
REC 9V
9.5V
TO AUDIO PG404
To JACK CIRCUIT BLOCK
PG015
SPEED PLAY
MONITFR CUT
TO SYSTEM CONTROL PG 915
PG016
A18V
A12V
REMOTE
C. PAUSE
PB 12V
TO SYSTEM CONTROL PG916
PG021
TO REGULATOR PG125
PG018
SW25Hz
FSC
SYNC
TO SERVO PG618
PG032
VIDEO IN
AUDIO IN
TO TUNER/IF PG751
PG033
AUDIO OUT
VIDEO OUT
TO RF CONVERTER PG01
Q804
2SA844D
Q802
2SC2021S
Q223
2SA844D
TP206
TP208
PICTURE CONTROL VOL RV001 10K
D802
1SS133T
D801
1SS133T
REMOTE
C. PAUSE
To JACK CIRCUIT BLOCK
To Y/CHROMA CIRCUIT BLOCK
VIDEO IN
R827 68
Q801 2SC2021S
Q809 2SC2021S
Q813 2SA934
Q814 2SC2021S
Q815 2SA952
L802 100
L803 470
L801 100μ
D801 1SS133T
PG024
V.REG
N.C
VIDEO
RCH
LCH
GND
DIN JACK
CONTROL LOGIC
SV3
SAA
SAB
SAD
SAC
NC
IC801
BA-7028
Q806 2SC2021S
Q807 2SC2021S
S002 INPUT SELECTOR SWITCH
C
TV
VTR
PG023
AUDIO L IN
GND
AUDIO R IN
AUDIO L OUT
AUDIO R OUT
To AUDIO PG1403
PG025
VIDEO OUT
AUDIO OUT L
AUDIO OUT R
AUDIO IN R
AUDIO IN L
Q811 2SC2021S
Q812 2SC2021S
Q810 2SC2021S
D805 1S2473
PG035
(L+R)-BL
DEM L OUT
DEM R OUT
GND
To DEMODULATOR PG1804
Q816L 2SC2021S
Q816R 2SC2021S
Y/CHROMA P.C.B
13
14
15
16
17
18
19
20
21
22
23
24
25
26

X VOLTAGES ARE MEASURED IN PLAY MODE, AND VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

Y·CHROMA CIRCUIT WAVEFORM DIAGRAM

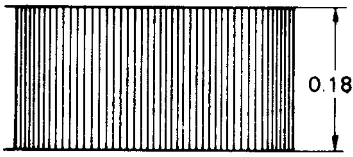
The diagram below shows the waveforms measured in the order of the route of the signal obtained when the color bar signal recorded on the alignment tape is played back. The FM signal measured at the TV-V (1ms/-div) position and the other signals, at the TV-H (20μs/div) position.

30



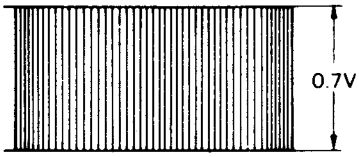
IC201-① (PLAY)

31



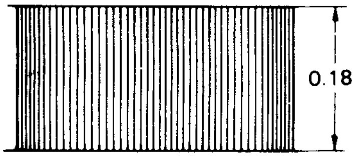
IC201-③ (PLAY)

32



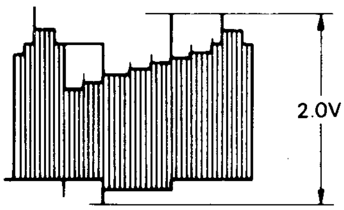
IC201-⑦ (PLAY)

33



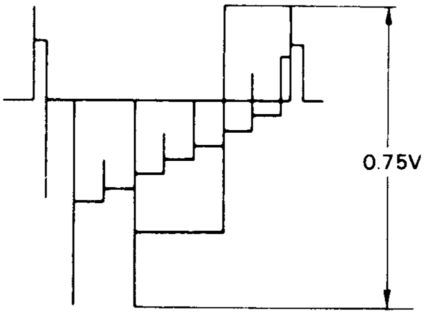
IC202-⑫ (PLAY)

34



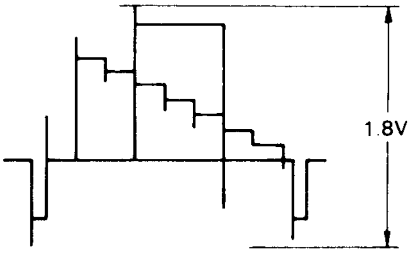
IC202-⑤ (PLAY)

35



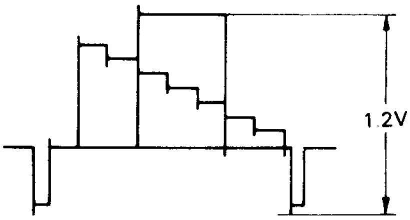
IC202-⑭ (PLAY)

36



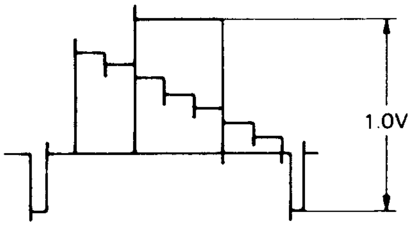
IC202-⑰ (PLAY)

37

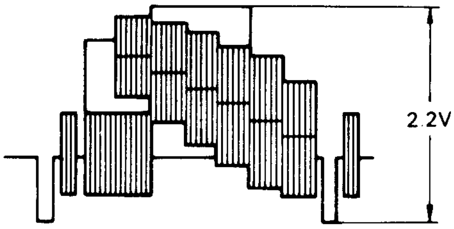
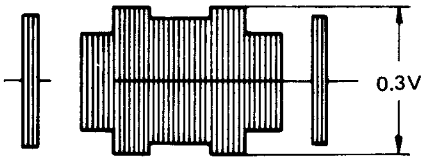
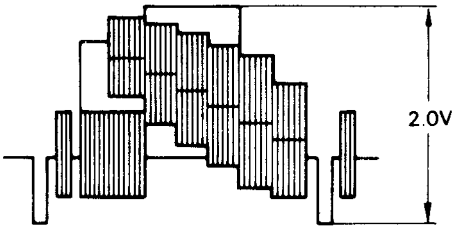
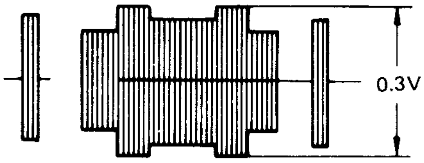
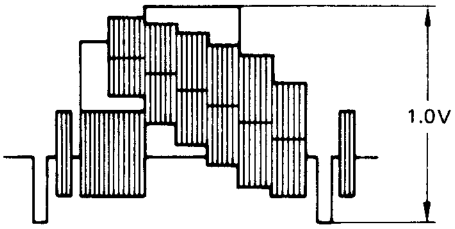
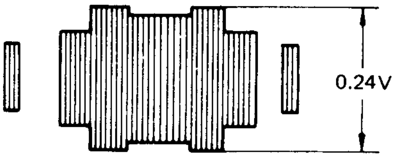
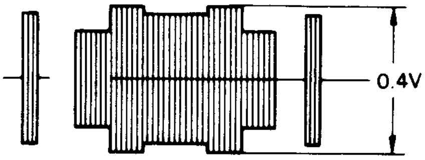
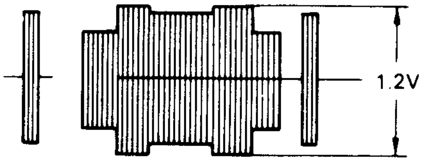


IC202-⑱ (PLAY)

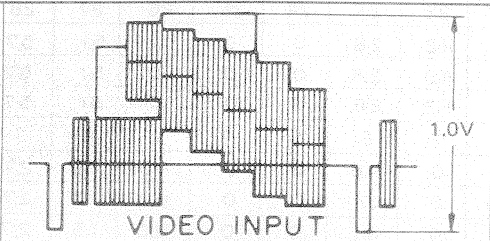
38



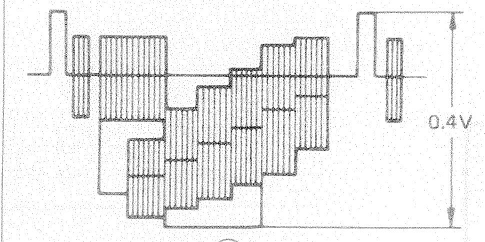
IC202-⑮
IC202-① (PLAY)

39	 IC202-㉔ (PLAY)	**44**	 IC203-㉓ (PLAY)
40	 VIDEO OUT(PLAY)	**45**	 IC203-㉗(PLAY)
41	 RF VIDEO OUT (PG 033 ⑧)(PLAY)	**47**	 IC202-㉒ (PLAY)
42	 IC203-⑤ (PLAY)		
43	 IC203-⑧ (PLAY)		

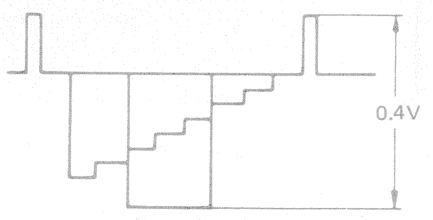
The diagram below shows the waveforms measured in the order of the route of the signal obtained when the color bar signal (1.0Vp-p) is input to the video input jack and recorded in the LP mode. The FM signal is measured at the TV-V (1 ms/div) position, and the other signals, at the TV-H (20μs/div) position.

50


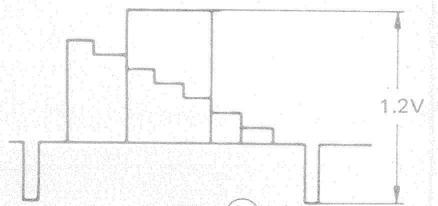
VIDEO INPUT
IC202-② (REC)

51


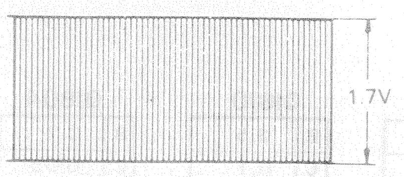
IC202-⑤ (REC)

52


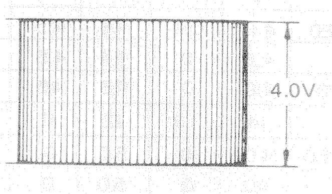
IC202-⑯ (REC)

53


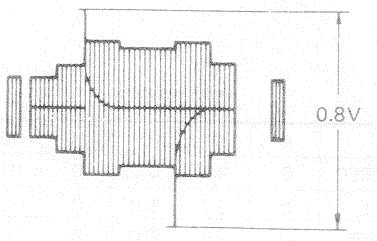
IC201-⑫
IC202-⑮ (REC)

54


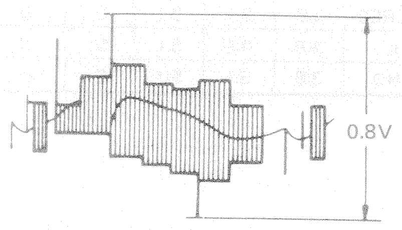
IC201-① (REC)

55


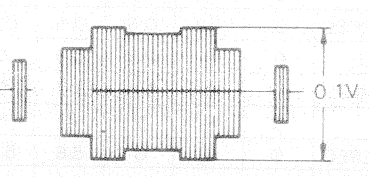
IC201-㉕ (REC)

56


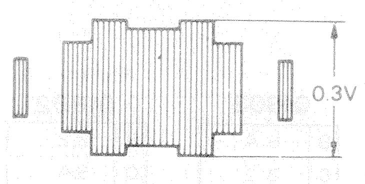
IC203-⑦ (REC)

57


IC203-⑧ (REC)

58


IC203-㉓ (REC)

59


IC203-㉘ (REC)

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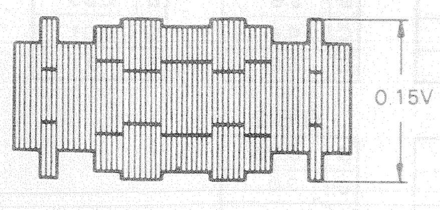
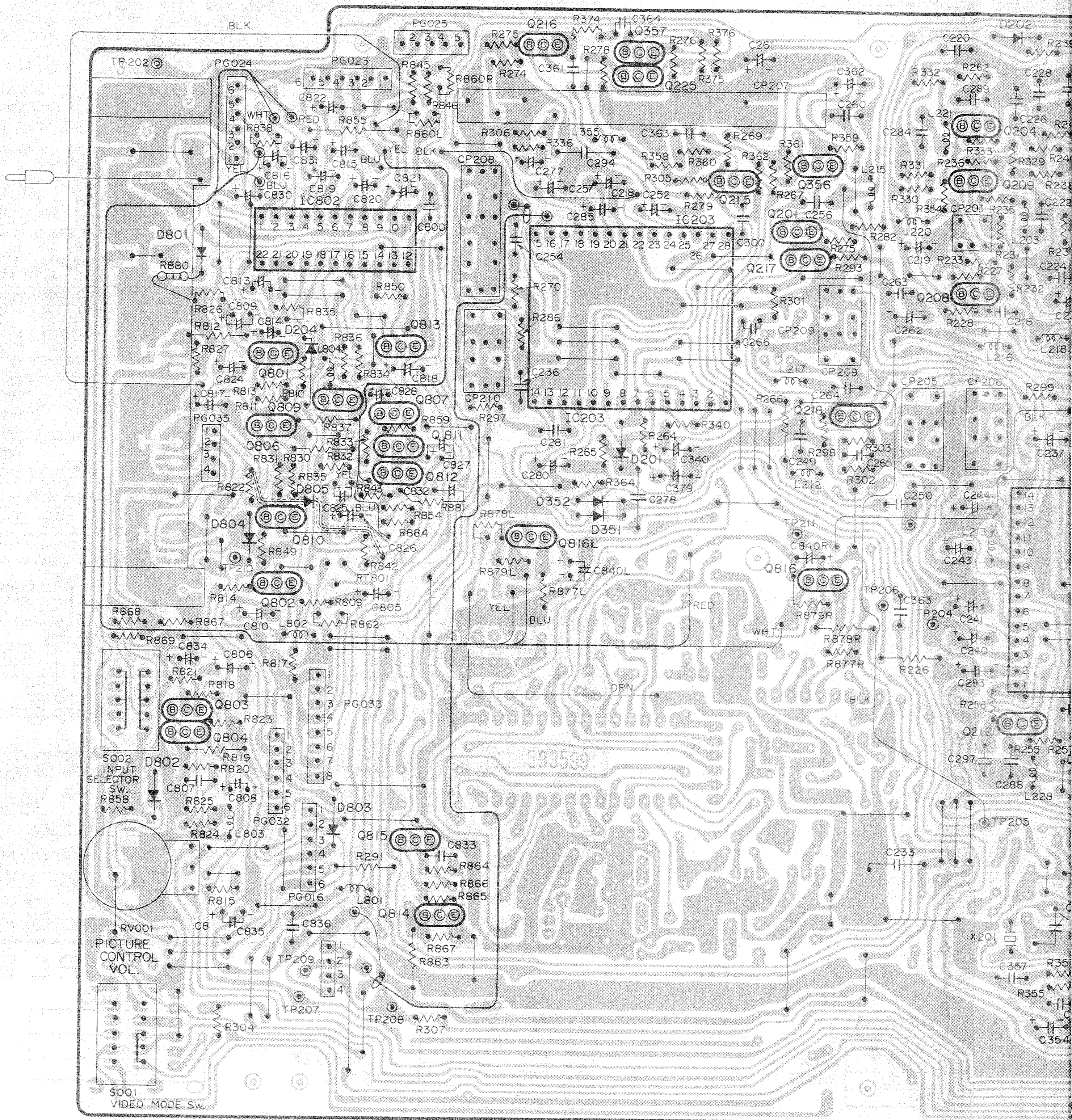


IC201 - ㉘ (REC)


BLK
TP202
PG024
PG023
PG025
R275
Q216
R374
C364
Q357
R276
R376
C261
C220
D202
R845
R860R
R274
C361
R278
Q225
R375
CP207
C362
R332
R262
C289
C228
R846
C822
RED
WHT
R838
R855
R860L
C260
C226
Q204
R306
R336
L355
C363
R269
R361
R359
C284
R221
R333
R329
C277
C294
R358
R360
R362
Q356
L215
R331
R236
Q209
C831
C815
BLU
YEL
C816
C819
C821
CP208
C257
C218
R305
Q215
R267
R330
IC802
C820
C830
C252
R279
IC203
Q201
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CP20
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C219
R233
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R880
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Q217
R293
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C813
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R301
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Q208
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R826
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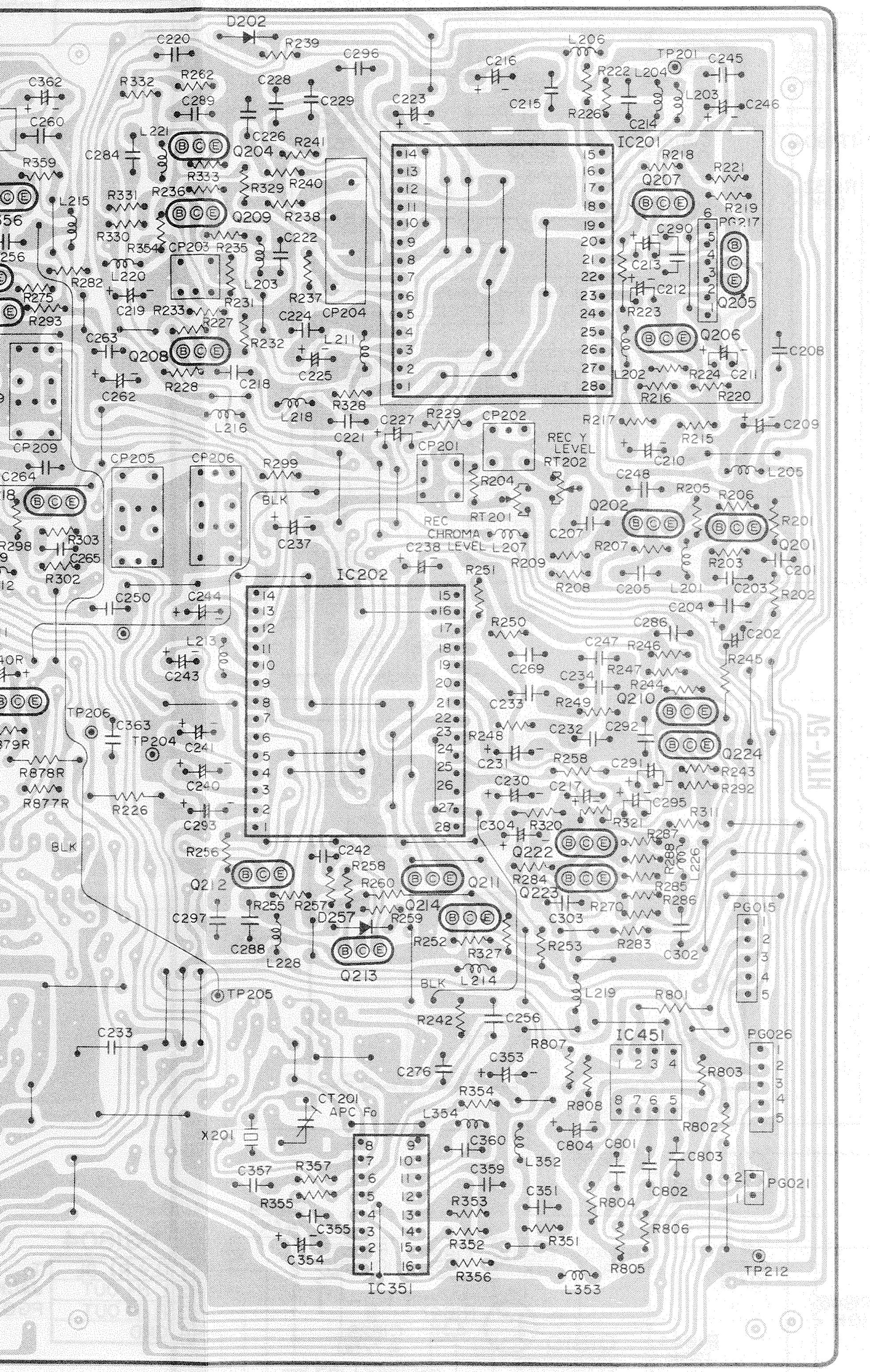
C243
R842
RT801
R879L
C840L
Q816
R814
Q802
R809
C805
R877L
TP206
C363
C241
R868
R867
L802
R862
YEL
BLU
RED
TP204
R869
C810
WHT
R879R
R878R
C834
C806
R817
R877R
C240
R226
R821
DRN
C293
R818
Q803
PG033
BLK
R256
R823
Q804
Q212
S002 INPUT SELECTOR SW.
D802
R819
R820
C297
R255
R257
C807
593599
C288
R858
R825
C808
D803
L228
PG032
R824
L803
TP205
Q815
C833
R291
R864
C233
R866
R865
PG016
L801
R815
Q814
C835
C836
R867
X201
RV001 PICTURE CONTROL VOL.
TP209
R863
C357
R351
R355
TP207
TP208
R307
R304
C354
S001 VIDEO MODE SW.


IC201
IC202
IC351
IC451
Q202
Q204
Q205
Q206
Q207
Q208
Q209
Q210
Q211
Q212
Q213
Q222
Q224
CP201
CP202
CP203
CP204
CP205
CP206
CP209
TP201
TP204
TP205
TP206
TP212
REC Y LEVEL RT202
REC CHROMA LEVEL RT201
CT201 APC Fo
X201
PG015
PG021
PG026
PG217
BLK
HTK-5V

Y/CHROMA P.C.B

PG024

6	AUDIO R
5	N. C
4	AUDIO L
3	GND
2	VIDEO
1	V. REG.

To
DIN JACK
CN614

PG023

6	AUDIO R OUT
5	N. C
4	AUDIO L OUT
3	AUDIO R IN
2	GND
1	AUDIO L IN

To
AUDIO
PG403

PG025

1	R CH OUT
2	GND
3	L CH OUT
4	GND
5	VIDEO OUT

To
JACK
CN001

PG035

1	(L+R)·BL)
2	L CH OUT
3	R CH OUT
4	GND

To
DEMODULATOR
PG1804

PG032

1	GND
2	VIDEO IN
3	GND
4	AUDIO IN
5	PB 12V
6	A12V

To
TUNER/IF
PG751

PG033

1	GND
2	9.5V
3	—
4	GND
5	AUDIO OUT
6	—
7	GND
8	VIDEO OUT

To
RF CONVERTER

PG016

1	A18V
2	REC 9V
3	A12V
4	REMOTE
5	C. PAVSE
6	PB12V

To
SYSTEM CONTROL
PG916

PG018

1	SW 25Hz
2	FSC
3	SYNC
4	GND

To
SERVO
PG618

PG015

1	REC9V
2	SPEED PLAY
3	PB 9V
4	MONITOR CUT
5	MUTE

To
SYSTEM CONTROL
PG915

PG026

1	MUTE
2	PB9V
3	REC9V
4	GND
5	9.5V

To
AUDIO
PG404

PG021

2	GND
1	9.5V

To
REGULATOR
PG125

PG217

1	CH1 REC
2	CH1 PB
3	GND
4	GND
5	CH2 PB
6	CH2 REC

To
CH1/CH2
VIDEO HEAD

	Q216	Q204	Q207
B	6.5(5.4)	2.0(0)	0(0.8)
C	8.9(8.9)	8.2(0)	0.1(0)
E	5.6(6.2)	1.3(0)	0(0)

	Q357	Q209	Q205
B	2.4(2.4)	1.7(0)	0.8(0)
C	0(8.9)	9.0(0)	0(9.3)
E	4.6(4.8)	1.2(0)	0(0)

	Q225	Q208	Q206
B	4.8(4.8)	2.3(0)	0(0.8)
C	8.9(8.9)	9.4(0)	0.1(0)
E	4.8(5.4)	1.7(0)	0(0)

	Q215	Q212	Q202
B	6.4(6.4)	5.7(6.5)	2.3(2.3)
C	0(0)	0(0)	7.0(7.0)
E	7.0(7.0)	6.6(5.8)	1.6(1.7)

	Q356	Q213	Q221
B	6.4(6.4)	4.7(5.8)	0(0)
C	0(0)	9.0(9.2)	1.5(1.4)
E	7.0(7.0)	6.7(2.8)	0(0)

	Q201	Q211	Q210
B	1.6(1.6)	0(0.7)	6.7(6.8)
C	7.7(7.7)	0(0)	9.0(9.0)
E	1.0(1.0)	0(0)	6.1(6.2)

	Q217	Q214	Q224
B	0.5(0.3)	0(0.5)	6.3(6.3)
C	3.5(3.5)	0(0)	9.5(9.4)
E	0(0)	6.8(0.1)	6.7(6.9)

	Q218	Q222	Q801
B	2.5(2.9)	2.2(4.7)	5.6(5.6)
C	7.4(7.1)	8.0(8.0)	9.3(0)
E	1.9(2.3)	1.5(2.2)	8.8(5.0)

	Q816L,R	Q223	Q813
B	1.8(1.8)	8.0(8.0)	19.6(19.0)
C	5.2(5.2)	1.0(1.0)	13.0(13.0)
E	1.2(1.2)	8.6(8.6)	18.4(19.0)

IC801

1	5.0	2	5.0	3	5.0	4	5.0	5	5.0	6	5.0	7	5.0	8	5.0
9	5.0	10	5.0	11	0	12	9.3(9.3)	13	13.0(13.0)	14	2.4(2.2)	15	3.0(3.2)	16	18.3(18.9)
17	2.9(3.1)	18	4.8(2.7)	19	0(0)	20	4.4(4.5)	21	4.3(4.5)	22	2.6(2.7)				

IC203

1	4.9(4.8)	2	4.8(4.8)	3	0(0)	4	3.5(3.5)	5	3.4(3.4)	6	4.7(4.7)	7	0(7.5)
8	4.7(6.9)	9	8.9(8.9)	10	6.9(6.9)	11	7.2(7.2)	12	6.8(6.8)	13	5.4(5.5)	14	4.4(4.3)
15	2.3(2.3)	16	0.1(0)	17	0(0)	18	5.4(5.4)	19	5.4(5.2)	20	4.2(5.2)	21	0(0)
22	0(0)	23	0(0)	24	0.2(0)	25	0.1(0)	26	1.3(0.9)	27	6.3(6.2)	28	5.8(4.8)

IC201

1	5.1(5.9)	2	0(0)	3	9.0(0)	4	9.3(0)	5	0.8(0)	6	0(1.5)	7	2.0(0)
8	0(0)	9	4.7(0)	10	0(4.9)	11	0(0)	12	0(6.2)	13	0(3.3)	14	0(5.9)
15	0(0.2)	16	0(1.7)	17	0(1.7)	18	0(9.2)	19	9.4(0)	20	7.9(0)	21	0.6(0)
22	0(0)	23	0.6(0)	24	0(0)	25	0(9.1)	26	0(2.4)	27	0(0)	28	0(2.4)

IC202

1	5.6(5.8)	2	5.5(6.3)	3	0.3(0.4)	4	0(1.5)	5	7.9(8.7)	6	9.4(0)	7	0(0)
8	9.0(9.2)	9	4.5(5.9)	10	4.5(5.9)	11	0(0)	12	1.3(0)	13	4.3(4.4)	14	7.9(8.7)
15	4.9(5.0)	16	4.3(3.7)	17	1.9(0)	18	4.9(5.4)	19	4.2(5.0)	20	4.3(4.5)	21	3.3(2.9)
22	0(0)	23	0(0.2)	24	5.9(5.3)	25	0(0)	26	0(0)	27	1.1(1.2)	28	8.1(6.0)

IC351

	1	2	3	4	5	6	7	8
PAL	0.5(0.4)	8.1(8.1)	1.7(1.7)	4.3(4.4)	0(0)	9.4(9.4)	5.7(5.6)	7.7(7.7)
SECAM	2.3(2.2)	0.5(0.5)	1.7(1.7)	4.4(4.4)	0(0)	9.4(9.4)	5.7(5.7)	7.7(7.7)
	16	15	14	13	12	11	10	9
PAL	9.3(9.3)	0.3(0.3)	3.5(3.5)	3.9(3.9)	0(0)	6.7(6.6)	6.7(6.6)	4.3(4.3)
SECAM	9.3(9.3)	0.3(0.3)	3.5(3.5)	3.9(3.9)	0(0)	6.7(6.6)	6.7(6.6)	4.3(4.3)

IC451

1	4.5(0.3)	2	0(0)	3	0(0)	4	0.1(0)	5	0.1(0)	6	0.2(0)	7	0.2(0)	8	8.4(0)

	Q809	Q811	Q810	Q803	Q815	Q806
B	3.0(0)	1.0(1.0)	0(0)	7.4(7.4)	18.3(19.0)	0(0.2)
C	9.2(9.3)	6.0(6.0)	5.6(5.6)	4.4(4.4)	19.0(19.8)	0(7.4)
E	2.3(0)	1.6(1.6)	0(0)	8.1(8.1)	19.5(20.1)	0(0)

	Q807	Q812	Q802	Q804	Q814
B	0(0.7)	1.0(1.0)	5.2(5.2)	4.5(4.4)	0(0)
C	2.3(0)	6.2(6.0)	9.3(9.3)	9.3(9.2)	0(0)
E	0(0)	5.6(1.6)	4.5(4.5)	3.8(3.8)	0.7(0.7)

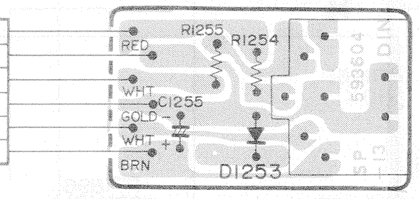
※ VOLTAGES ARE MEASURED IN PLAY MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN RECORD MODE.

To
Y/CHROMA
PG024

CN614

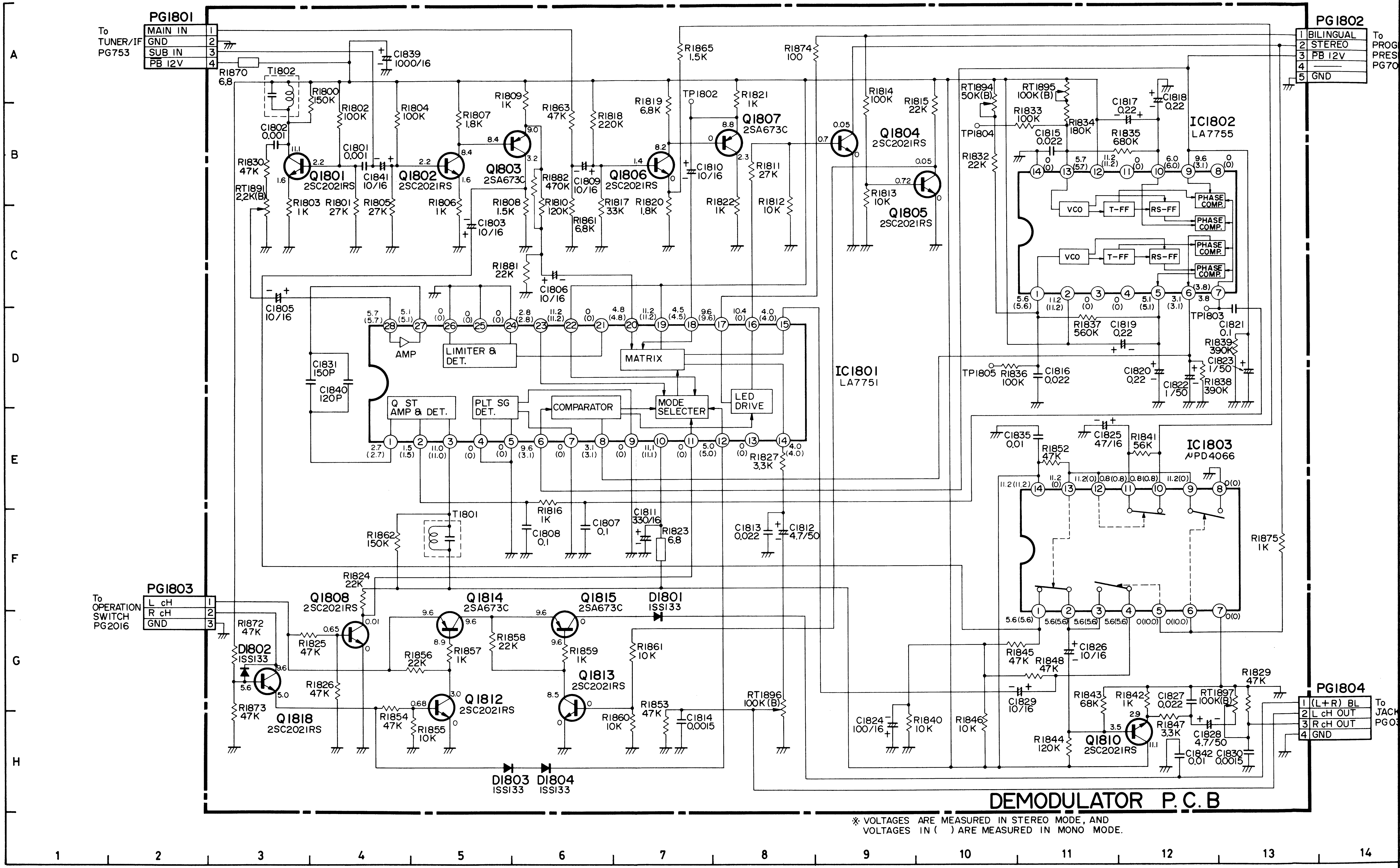
6	AUDIO R
5	N·C
4	AUDIO L
3	GND
2	VIDEO
1	V. REG

6P DIN SOCKET


RED
WHT
GOLD
WHT
BRN
R1255
R1254
C1255
D1253
593604
DIN
5P

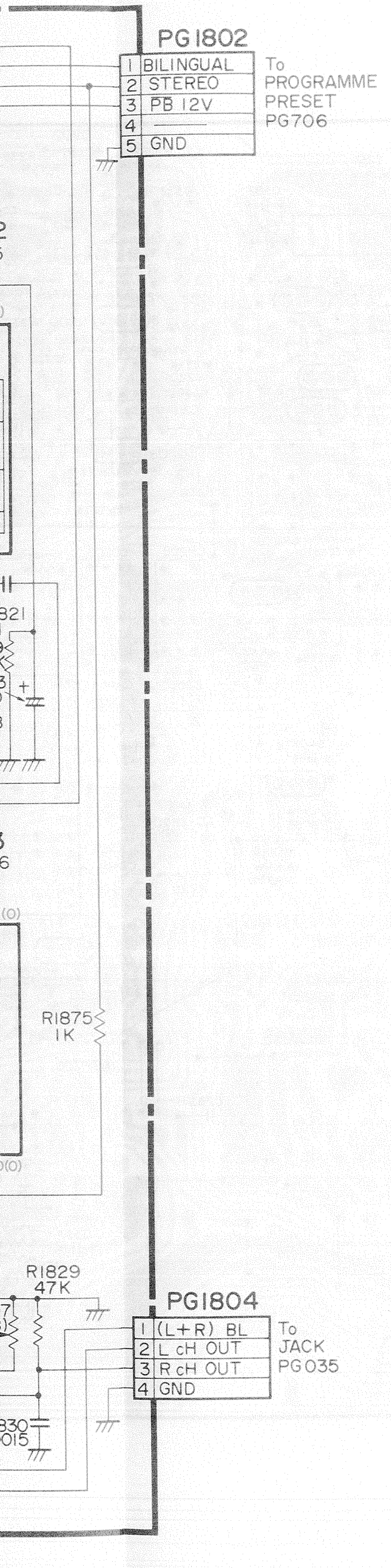
DIN P.C.B

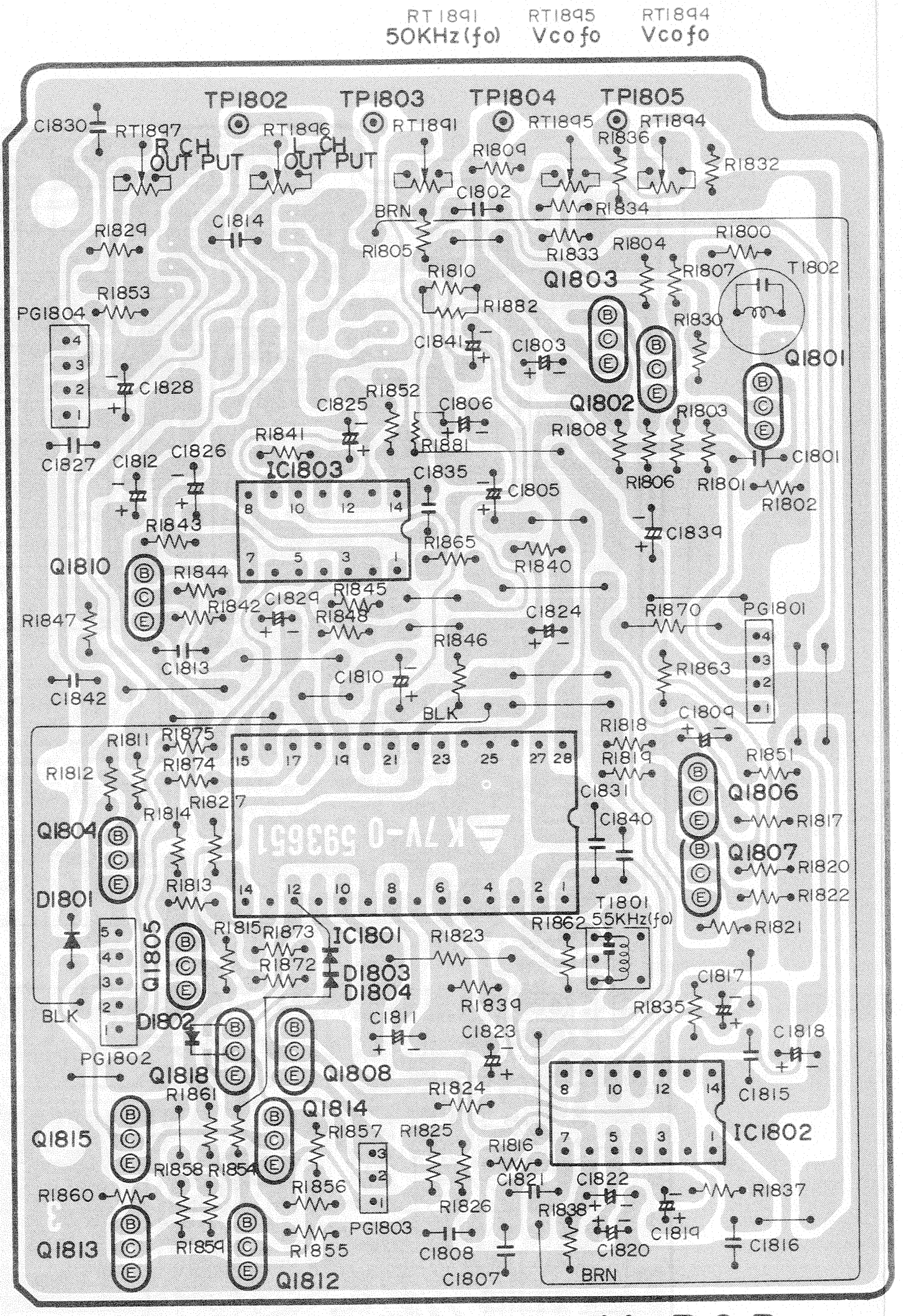
DEMODULATOR[Except for UK model only]



PG1801
To TUNER/IF PG753
1 MAIN IN
2 GND
3 SUB IN
4 PB 12V
R1870 6.8
T1802
C1839 1000/16
R1800 150K
C1802 0.001
R1802 100K
R1804 100K
R1830 47K
RT1891 2.2K(B)
Q1801 2SC2021RS
C1801 0.001
C1841 10/16
Q1802 2SC2021RS
R1807 1.8K
R1809 1K
Q1803 2SA673C
R1803 1K
R1801 27K
R1805 27K
R1806 1K
C1803 10/16
R1808 1.5K
R1882 470K
R1810 120K
R1863 47K
R1818 220K
C1809 10/16
R1861 6.8K
Q1806 2SC2021RS
R1817 33K
R1820 1.8K
R1819 6.8K
R1865 1.5K
TP1802
R1821 1K
Q1807 2SA673C
C1810 10/16
R1811 27K
R1822 1K
R1812 10K
R1874 100
R1814 100K
R1815 22K
Q1804 2SC2021RS
R1813 10K
Q1805 2SC2021RS
R1881 22K
C1806 10/16
C1805 10/16
C1831 150P
C1840 120P
AMP
LIMITER & DET.
MATRIX
Q ST AMP & DET.
PLT SG DET.
COMPARATOR
MODE SELECTER
LED DRIVE
IC1801 LA7751
R1827 3.3K
R1816 1K
C1808 0.1
C1807 0.1
C1811 330/16
R1823 6.8
C1813 0.022
C1812 4.7/50
R1862 150K
T1801
PG1802
To PROG PRES PG70
1 BILINGUAL
2 STEREO
3 PB 12V
4
5 GND
RT1894 50K(B)
RT1895 100K(B)
R1833 100K
R1834 180K
C1817 0.22
C1818 0.22
TP1804
C1815 0.022
R1835 680K
R1832 22K
IC1802 LA7755
VCO
T-FF
RS-FF
PHASE COMP.
TP1803
C1821 0.1
R1839 390K
C1823 1/50
R1838 390K
R1837 560K
C1819 0.22
TP1805
R1836 100K
C1816 0.022
C1820 0.22
C1822 1/50
C1835 0.01
R1852 47K
C1825 47/16
R1841 56K
IC1803 μPD4066
R1875 1K
PG1803
To OPERATION SWITCH PG2016
1 L cH
2 R cH
3 GND
R1872 47K
D1802 1SS133
R1873 47K
Q1818 2SC2021RS
R1824 22K
Q1808 2SC2021RS
R1825 47K
R1826 47K
Q1814 2SA673C
R1856 22K
R1857 1K
R1858 22K
Q1815 2SA673C
R1859 1K
D1801 1SS133
R1861 10K
Q1812 2SC2021RS
R1854 47K
R1855 10K
Q1813 2SC2021RS
R1860 10K
R1853 47K
C1814 0.0015
RT1896 100K(B)
D1803 1SS133
D1804 1SS133
C1824 100/16
R1840 10K
R1846 10K
R1845 47K
R1848 47K
C1826 10/16
C1829 10/16
R1843 68K
R1842 1K
C1827 0.022
RT1897 100K(B)
R1829 47K
R1844 120K
Q1810 2SC2021RS
R1847 3.3K
C1828 4.7/50
C1842 0.01
C1830 0.0015
PG1804
To JACK PG0
1 (L+R) BL
2 L cH OUT
3 R cH OUT
4 GND
DEMODULATOR P.C.B
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
10
11
12
13
14

※ VOLTAGES ARE MEASURED IN STEREO MODE, AND
VOLTAGES IN ( ) ARE MEASURED IN MONO MODE.


PG1802
1 BILINGUAL
2 STEREO
3 PB 12V
4
5 GND
To PROGRAMME PRESET PG706
R1875 1K
R1829 47K
PG1804
1 (L+R) BL
2 L cH OUT
3 R cH OUT
4 GND
To JACK PG035
830
015


RT1891 50KHz(fo)
RT1895 Vco fo
RT1894 Vco fo
TP1802
TP1803
TP1804
TP1805
C1830
RT1897
R CH OUT PUT
RT1896
L CH OUT PUT
RT1891
RT1895
RT1894
R1809
R1836
R1832
C1802
BRN
R1834
R1829
C1814
R1805
R1833
R1804
R1800
T1802
R1810
R1807
R1853
Q1803
R1882
PG1804
C1841
C1803
R1830
Q1801
C1828
Q1802
C1825
R1852
C1806
R1803
R1841
R1881
R1808
C1801
C1827
C1812
C1826
IC1803
C1835
R1806
R1801
R1802
C1805
R1843
C1839
R1865
R1840
Q1810
R1844
R1842
C1829
R1845
R1848
C1824
R1870
PG1801
R1847
R1846
C1813
R1863
C1810
C1842
BLK
C1809
R1818
R1811
R1875
R1819
R1851
R1812
R1874
C1831
Q1806
R1827
C1840
R1817
R1814
Q1804
K 7V-0 593651
Q1807
R1820
R1813
R1822
T1801 55KHz(fo)
D1801
R1815
R1873
IC1801
R1823
R1862
R1821
R1872
D1803
Q1805
D1804
C1817
R1839
BLK
C1811
R1835
D1802
C1823
C1818
PG1802
Q1818
Q1808
R1824
R1861
Q1814
C1815
Q1815
R1857
R1825
IC1802
R1816
R1858
R1854
C1822
C1821
R1856
R1826
R1837
R1860
R1838
C1819
PG1803
R1859
R1855
C1820
C1816
Q1813
C1808
BRN
Q1812
C1807

DEM P.C.B

PG1801	
4	PB 12V
3	SUB IN
2	GND
1	MAIN IN

To
TUNER/IF
PG 153

PG1803	
3	GND
2	R CH
1	L CH

To
OPERATION
SWITCH
PG 2016

PG1802	
5	GND
4	LED
3	DEF
2	STEREO
1	DUAL

To
PROGRAMME
PRESET
PG706

PG1804	
4	GND
3	R CH OUT
2	L CH OUT
1	L CH + R CH

To
JACK
PG035

IC801

	15	16	17	18	19	20	21	22	23	24	25	26	27	28
STEREO	4.0	10.4	9.6	4.5	11.2	4.8	0	11.2	2.8	0	0	0	5.1	5.7
B.L	4.0	0	1.4	4.5	11.2	4.8	0	11.2	2.8	0	0	0	5.1	5.7
MONO	4.0	0	9.6	4.5	11.2	4.8	0	11.2	2.8	0	0	0	5.1	5.7
	14	13	12	11	10	9	8	7	6	5	4	3	2	1
STEREO	4.0	0	5.0	0	11.1	0	3.1	0	9.6	0	0	11.0	1.5	2.7
B.L	4.0	0	5.0	0	11.1	0	9.6	0	3.1	0	0	11.0	1.5	2.7
MONO	4.0	0	5.0	0	11.1	0	3.1	0	3.1	0	0	11.0	1.5	2.7

IC1802

	8	9	10	11	12	13	14
STEREO	0	9.6	6.0	0	11.2	5.7	0
B.L	0	3.1	6.0	0	11.2	5.7	0
MONO	0	3.1	6.0	0	11.2	5.7	0
	7	6	5	4	3	2	1
STEREO	3.8	3.1	5.1	0	0	11.2	5.6
B.L	3.8	9.6	5.1	0	0	11.2	5.6
MONO	3.8	3.1	5.1	0	0	11.2	5.6

IC1803

	8	9	10	11	12	13	14
STEREO	0	11.2	0.8	0.8	11.2	11.2	11.2
B.L	0	0	0.8	0.8	0	0	11.2
MONO	0	0	0.8	0.8	0	0	11.2
	7	6	5	4	3	2	1
STEREO	0	0	0	5.6	5.6	5.6	5.6
B.L	0	10.0	10.0	5.6	5.6	5.6	5.6
MONO	0	10.0	10.0	5.6	5.6	5.6	5.6

	Q1803	Q1802	Q1801	Q1810	Q1804
B	8.4	2.2	2.2	3.5	0.7
C	3.2	8.4	11.1	11.1	0.05
E	9.0	1.6	1.6	2.9	0

	Q1806	Q1807	Q1805	Q1818	Q1808
B	1.4	0	0.72	5.6	0.65
C	8.2	2.3	0.05	9.6	0.01
E	0	8.8	0	5.0	0

	Q1815	Q1814	Q1813	Q1812
B	9.6	8.9	0	0.68
C	0	9.6	8.5	3.0
E	9.6	9.6	0	0

REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
CT201	5058102	VARIABLE CAPACITOR
C051-052	0256388	TANTALUM ELECTROLYTIC 10MF,10V (BS)
C278	0239311	CERAMIC (RESISTOR SHAPE) 1000PF+-10 %
C294	0239311	CERAMIC (RESISTOR SHAPE) 1000PF+-10 %
C612	0209010	CERAMIC DISC (RESISTOR SHAPE) 1000PF+-10
C627	0256383	TANTALUM ELECTROLYTIC 4.7MF 16V
C639	0256383	TANTALUM ELECTROLYTIC 4.7MF 16V
C650-651	0209026	CERAMIC DISC (RESISTOR SHAPE) 0.01MF+-30
C906	0208141	CERAMIC DISC (RESISTOR SHAPE) 100PF +-5%
C909	0208141	CERAMIC DISC (RESISTOR SHAPE) 100PF +-5%
R1503	0111147	OXIDE METAL FILM RESISTOR
		RESISTORS
RT101	5007432	SEMI VARIABLE 1.0KOHM
RT1891	5007463	SEMI VARIABLE 22KOHM (E)
RT1894	5007464	SEMI VARIABLE 47KOHM (E)
RT1895	5007465	SEMI VARIABLE 100KOHM (E)
RT1896	5007462	SEMI VARIABLE RESISTOR (E)
RT1897	5007462	SEMI VARIABLE 10KOHM (E)
RT201	5007434	SEMI VARIABLE 4.7KOHM
RT202	5007432	SEMI VARIABLE 1.0KOHM
RT401L,R	5007449	SEMI VARIABLE 47KOHM
RT404L,R	5007452	SEMI VARIABLE 220KOHM
RT405L,R	5007447	SEMI VARIABLE 10KOHM
RT406L,R	5007447	SEMI VARIABLE 10KOHM
RT601	5007467	SEMI VARIABLE RESISTOR 47KOHM
RT602-603	5007464	SEMI VARIABLE 47KOHM
RT604	5007461	SEMI VARIABLE RESISTOR
RT605	5007462	SEMI VARIABLE RESISTOR
RT606-608	5007461	SEMI VARIABLE RESISTOR
RT801	5007436	SEMI VARIABLE 22KOHM
RV001	5005315	VARIABLE RESISTOR
RV001	5005317	VARIABLE RESISTOR 100K OHM
R1113	0170481	FUSE RESISTOR 22OHM+-5% 1/4W
R1823	0170481	FUSE RESISTOR 22OHM+-5% 1/4W (E)
R488	0149705	METAL FILM RESISTOR 470 OHM
R706	0170481	FUSE RESISTOR 22OHM+-5% 1/4W
R954	0171264	OXIDE METAL FILM RESISTOR
R957	0171265	METAL FILM RESISTOR 49.3KOHM
		SEMI-CONDUCTORS
D102	5331671	DIODE DS135D-FA3
D104	5331671	DIODE DS135D-FA3
D105-108	5331592	DIODE 1SS133
D110-121	5330131	DIODE 1S2076
D1101-1104	5330135	DIODE 1S2076A
D1106-1109	5330135	DIODE 1S2076A
D123	5330573	DIODE IS2473
D124-125	5331592	DIODE 1SS133
D1253	5331592	DIODE 1SS133 (E)
D126	5330101	RECTIFIER SILICON V06C 15K
D128	5330573	DIODE IS2473
D130	5380721	LED SLR-54UR4 (E)
D131	5331592	DIODE 1SS133
D137	5331592	DIODE 1SS133
D138	5330573	DIODE IS2473
D140	5380731	LED SLP-260C (E)
D1401-1405	5330573	DIODE IS2473 (BS)
D1501	5331521	DIODE S4VB10
D1502	5331921	DIODE S1WD
D1503-1505	5330101	RECTIFIER SILICON V06C 15K
D1801-1803	5331592	DIODE 1SS133 (E)
D201-203	5331592	DIODE 1SS133 (E)
D201-204	5331592	DIODE 1SS133 (BS)
D204	5330573	DIODE IS2473 (E)
D2041-2044	5380691	LED SLR34UR
D2045-2047	5380691	LED SLR34UR
D2048-2049	5380721	LED SLR-54UR4
D205	5331592	DIODE 1SS133 (BS)
D205	5331592	DIODE 1SS133 (E)
D2050	5380711	LED TLG-123A
D2061-2062	5330573	DIODE IS2473
D351-352	5331592	DIODE 1SS133 (E)
D401L,R	5330573	DIODE IS2473
D402L,R	5330573	DIODE IS2473
D403L,R	5330573	DIODE IS2473
D404L,R	5330573	DIODE IS2473
D405L,R	5330573	DIODE IS2473
D406	5331511	DIODE DAN201
D407	5330573	DIODE IS2473
D481	5340205	VARISTOR VD1221
D482	5331592	DIODE 1SS133
D601-614	5331592	DIODE 1SS133
D617-620	5331592	DIODE 1SS133
D621	5331511	DIODE DAN201
D622-625	5331592	DIODE 1SS133
D711A-711D	5330131	DIODE 1S2076
D711E-711H	5330131	DIODE 1S2076
D711I-711P	5330131	DIODE 1S2076 (E)

SYMBOL-NO	P-NO	DESCRIPTION
		SEMI-CONDUCTORS
D712A-712H	5330131	DIODE 1S2076 (E)
D712I-712P	5330133	DIODE SILICON 1S2076 100MHZ 250MW (E)
D713	5331592	DIODE 1SS133
D721-724	5331592	DIODE 1SS133
D801	5331592	DIODE 1SS133 (E)
D802-804	5331592	DIODE 1SS133
D901	5331592	DIODE 1SS133
D902-903	5331671	DIODE DS135D-FA3
D904-906	5331592	DIODE 1SS133
D909-912	5331511	DIODE DAN201
D913-917	5331592	DIODE 1SS133
D914	5330573	DIODE IS2473
D915	5331592	DIODE 1SS133
D918	5330573	DIODE IS2473
IC051	5355261	IC MPC1373H (BS)
IC101	5369882	IC M-58839-606P
IC102	5355241	IC NJD6506S
IC102	5365491	IC HD14066
IC103	5369181	IC M5218L
IC104	5369171	IC M54543L
IC1402	5355231	IC M50127AP (BS)
IC1403	5359631	IC MPD4081 (BS)
IC1404	5365441	IC MPD4069C (BS)
IC1407	5375921	IC TA4350 (BS)
IC141	5391032	HOLEIC DN6838A
IC1801	5363131	IC LA7751 (E)
IC1802	5363121	IC LA7755 (E)
IC1803	5359901	IC UPD4066C (E)
IC201	5358611	MODULE HT4207
IC202	5376581	IC HT-4238
IC203	5376591	IC HT-4239
IC2051	5355241	IC NJD6506S
IC351	5355461	IC BA7100 (E)
IC401	5350714	IC BA-3302
IC402	5359901	IC UPD4066C
IC403L,R	5352691	IC TA7629
IC404	5359901	IC UPD4066C
IC481	5355451	IC HA13402
IC601	5350961	IC BA340
IC602	5355492	IC HA11747A
IC603-604	5355501	IC HA11749
IC605	5355241	IC NJD6506S
IC721	5351722	IC MPC1363C
IC801	5369391	IC MSL9378RS
IC802	1111111	IC (E)
IC901	5369171	IC M54543L
IC902	5369325	IC HD38800B12
IC903	5369252	IC BA6304A
IC904	5365583	IC HD38702A25
Q101	5321663	TRANSISTOR 2SC2021RS
Q101-103	5323221	TRANSISTOR 2SD972
Q104	5321663	TRANSISTOR 2SC2021RS
Q104	5322733	TRANSISTOR 2SA952ML
Q105	5321663	TRANSISTOR 2SC2021RS
Q106	5320723	TRANSISTOR 2SA715WT-C
Q107	5323332	TRANSISTOR 2SD882-Q
Q108	5323221	TRANSISTOR 2SD972
Q111-113	5321663	TRANSISTOR 2SC2021RS
Q114	5322623	TRANSISTOR 2SC2320EF
Q141-142	5380131	PHOTO TRANSISTOR
Q1410	5321252	2SA844D (BS)
Q1801-1802	5321663	TRANSISTOR 2SC2021RS (E)
Q1803	5320593	TRANSISTOR 2SA673C (E)
Q1804-1806	5321663	TRANSISTOR 2SC2021RS (E)
Q1807	5320593	TRANSISTOR 2SA673C (E)
Q1808-1813	5321663	TRANSISTOR 2SC2021RS (E)
Q1814-1815	5320593	TRANSISTOR 2SA673C (E)
Q1816	5321663	TRANSISTOR 2SC2021RS (E)
Q1817	5320593	TRANSISTOR 2SA673C (E)
Q201-202	5321662	TRANSISTOR 2SC2021S
Q204-211	5321662	TRANSISTOR 2SC2021S
Q2053	5321663	TRANSISTOR 2SC2021RS
Q212	5321252	2SA844D
Q213	5321662	TRANSISTOR 2SC2021S
Q214-215	5321252	2SA844D
Q216-218	5321662	TRANSISTOR 2SC2021S
Q219-220	5321662	TRANSISTOR 2SC2021S (BS)
Q221	5321662	TRANSISTOR 2SC2021S (E)
Q222	5321662	TRANSISTOR 2SC2021S
Q223	5321252	2SA844D
Q224-225	5321662	TRANSISTOR 2SC2021S
Q356	5321252	2SA844D (E)
Q357	5321662	TRANSISTOR 2SC2021S (E)
Q401L,R	5321192	TRANSISTOR 2SD467B
Q402L,R	5321663	TRANSISTOR 2SC2021RS
Q403L,R	5321663	TRANSISTOR 2SC2021RS
Q404L,R	5321663	TRANSISTOR 2SC2021RS
Q405L,R	5321663	TRANSISTOR 2SC2021RS
Q406-407	5321663	TRANSISTOR 2SC2021RS
Q409L,R	5321663	TRANSISTOR 2SC2021RS
Q412-413	5321663	TRANSISTOR 2SC2021RS

SYMBOL-NO	P-NO	DESCRIPTION
		SEMI-CONDUCTORS
Q414L,R	5321663	TRANSISTOR 2SC2021RS
Q420L,R	5321663	TRANSISTOR 2SC2021RS
Q421L,R	5321663	TRANSISTOR 2SC2021RS
Q422-423	5321253	TRANSISTOR 2SA844
Q424L,R	5321663	TRANSISTOR 2SC2021RS
Q425	5321253	TRANSISTOR 2SA844
Q481-482	5321662	TRANSISTOR 2SC2021S
Q601	5322892	TRANSISTOR 2SA1198RS
Q602-605	5321663	TRANSISTOR 2SC2021RS
Q606	5320069	TRANSISTOR 2SC458CD
Q712	5321663	TRANSISTOR 2SC2021RS
Q722	5321663	TRANSISTOR 2SC2021RS
Q724	5320603	TRANSISTOR SILICON 2SA673A-C 80MHZ 400MW
Q725-727	5320603	TRANSISTOR SILICON 2SA673A-C 80MHZ 400MW (E)
Q728	5320623	TRANSISTOR SILICON 2SC1213A-C 80MHZ 400M
Q733	5320603	TRANSISTOR SILICON 2SA673A-C 80MHZ 400MW
Q735	5322623	TRANSISTOR 2SC2320EF
Q801-803	5321662	TRANSISTOR 2SC2021S
Q804	5321252	2SA844D
Q806-807	5321662	TRANSISTOR 2SC2021S (E)
Q809-810	5321662	TRANSISTOR 2SC2021S (E)
Q811-812	5321662	TRANSISTOR 2SC2021S
Q813	5322802	TRANSISTOR 2SA934Q (E)
Q814	5321662	TRANSISTOR 2SC2021S (E)
Q815	5322732	TRANSISTOR 2SA952ML2 (E)
Q901	5321663	TRANSISTOR 2SC2021RS
Q903	5322732	TRANSISTOR 2SA952ML2
Q904	5321663	TRANSISTOR 2SC2021RS
Q905	5322732	TRANSISTOR 2SA952ML2
Q906	5321663	TRANSISTOR 2SC2021RS
Q907	5322732	TRANSISTOR 2SA952ML2
Q908	5321252	2SA844D
Q911	5321663	TRANSISTOR 2SC2021RS
Q918	5321663	TRANSISTOR 2SC2021RS
ZD101	5330563	DIODE HZ16-3
ZD101	5331264	ZENER DIODE HZ7-B3L
ZD102	5330535	DIODE HZ-9A2
ZD102	5330553	DIODE HZ11C
ZD103	5330393	ZENER DIODE SILICON HZ6C 1MHZ
ZD104	5330535	DIODE HZ-9A2
ZD104	5330541	ZENER DIODE HZ-15
ZD105	5330329	ZENNER DIODE HZ9C2
ZD105	5330555	DIODE HZ11B2
ZD106	5330391	DIODE-ZENER SILICON
ZD481	5330713	DIODE HZ-3B
ZD601	5330396	ZENNER DIODE HZ-6A1
ZD721	5350611	IC UPC574J
ZD722	5330555	DIODE HZ11B2
ZD901-902	5330325	DIODE HZ9A2
		TRANSFORMERS
T1801	1111111	XTAL (E)
		COILS
L051	5120567	TRAP COIL (BS)
L1800	5152099	CHOKE COIL (E)
L201	5152324	CHOKE COIL 10UH+-10%
L202	5152342	CHOKE COIL 220UH+-10%
L203	5152332	CHOKE COIL 39UH+-10%
L204	5152336	CHOKE COIL 82UH+-10%
L205	5152337	CHOKE COIL 100UH+-10%
L206	5152346	CHOKE COIL 470UH+-10%
L207	5152337	CHOKE COIL 100UH+-10%
L208	5152334	CHOKE COIL 56UH+-10%
L211	5152342	CHOKE COIL 220UH+-10%
L212	5152332	CHOKE COIL 39UH+-10%
L213	5152333	CHOKE COIL 47UH+-10%
L214	5152348	CHOKE COIL 680MH
L215	5152342	CHOKE COIL 220UH+-10%
L216	5152342	CHOKE COIL 220UH+-10%
L217	5152349	CHOKE COIL 820MH
L218	5152339	CHOKE COIL 150UH+-10%
L219	5152342	CHOKE COIL 220UH+-10%
L220	5152324	CHOKE COIL 10UH+-10%
L221	5152332	CHOKE COIL 39UH+-10%
L222	5152087	PEAKING COIL 100MICROH
L226-227	5152336	CHOKE COIL 82UH+-10%
L228	5152342	CHOKE COIL 220UH+-10%
L352	5150574	CHOKE COIL (E)
L353	5150366	CHOKE COIL 15 MH
L354	5152344	CHOKE COIL 330MICRO H
L355	5152329	CHOKE COIL 27 MICROH
L401L,R	5162282	FILTER BLOCK
L402	5152349	CHOKE COIL 820MH
L403L,R	5120563	TRAP COIL 70KHZ
L404L,R	5152623	CHOKE COIL 15000MICRO H
L801-802	5152337	CHOKE COIL 100UH+-10%
L803	5152334	CHOKE COIL 56UH+-10%
		CRYSTALS
CE1401	5780671	CERAMIC OSCILLATOR 455 KHZ (BS)
X101	5780504	XTAL

REPLACEMENT PARTS LIST

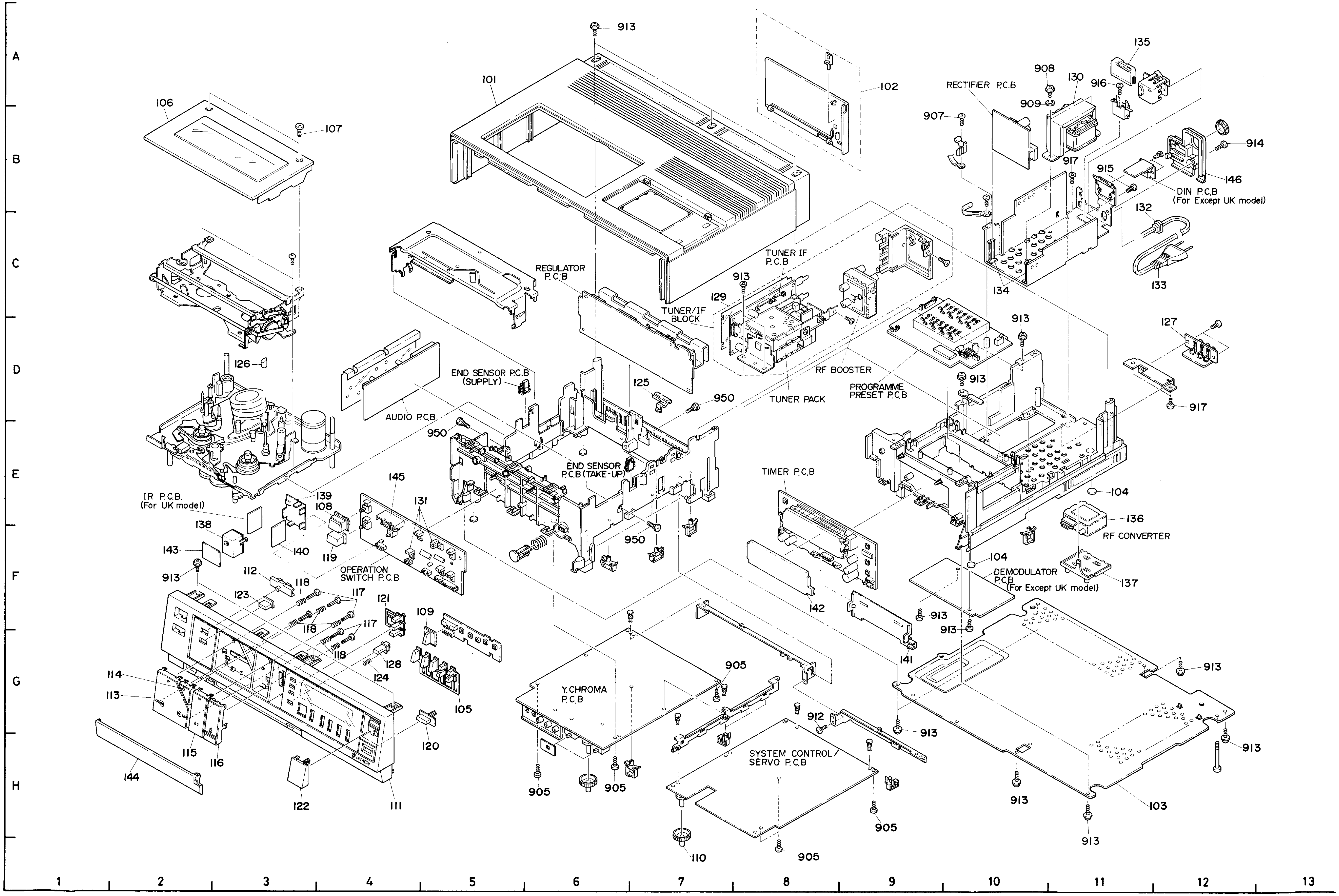
ELECTRICAL PARTS LIST[Except for UK model]

SYMBOL-NO	P-NO	DESCRIPTION
		CRYSTASL
X201	5780536	CRYSTAL
		MISCELLANEOUS
	5602091	MAIN SWITCH
	5722131	1P FUSE HOLDER
	6773211	SWITCH COVER
	6866132	HOLE IC HOLDER
	6867061	END SENSER HOLDER
CP201	5162332	LOW PASS FILTER
CP202	5162334	HIGH PASS FILTER
CP203	5123833	COIL
CP204	5785191	DELAY LINE
CP205	5162345	LOW PASS FILTER
CP206	5162344	DELAY LINE
CP207	5785221	2H DELAY LINE
CP208	5161902	BAND PASS FILTER
CP209	5162346	LOW PASS FILTER
CP210	5161974	BAND PASS FILTER
CP401	5260961	OSC BLOCK
FU1502	5721065	FUSE 3.15A
J1251	5653441	6P DIN SOCKET (E)
PD051	5380892	PHOT. DIODE PH302 (BS)
PH101	0249795	POTHISTOR
PH901	0249794	POSITIVE THERMISTOR
PV701	5008921	PRESET CHANNEL RESISTOR (BS)
PV701	5008927	PRESET CHANNEL RESISTOR (E)
RA2051	5378963	RESISTOR BLOCK R0704
RL401L,R	5641413	RELAY
S001	5622511	SWITCH
S002	5624413	SLIDE SWITCH (E)
S110	5633792	PUSH SWITCH
S1101	5624454	SLIDE SWITCH
S1102-1104	5633911	SWITCH
S1106-1109	5633911	SWITCH
S111-118	5633911	SWITCH
S2051-2052	5633792	PUSH SWITCH
S2053-2058	5633851	PUSH SWITCH
S2061	5624451	SLIDE SWITCH
S2062	5633792	PUSH SWITCH
S712	5633694	SWITCH (AFS)
S713	5622192	SLIDE SWITCH (E)
		FOR FINAL ASSEMBLY
101	6020441	TOP CASE (BS)
101	6020442	TOP CASE (E)
102	6187051	CHANNEL PRESET DOOR ASSEMBLY
103	6045744	BOTTOM COVER

SYMBOL-NO	P-NO	DESCRIPTION
104	7740662	FELT-LEG
105	6065251	TIMER BUTTON ASSEMBLY
106	6094414	CASSETTE LID ASSEMBLY
107	7547744	SPECIAL SCREW
108	6065533	POWER BUTTON
109	6075001	KNOB
110	6292952	KNOB (TRACKING)
111	6235191	FRONT PANEL ASSEMBLY (BS)
111	6235192	FRONT PANEL ASSEMBLY (E)
112	6075011	SLIDE KNOB
113	6057494	BUTTON (PLAY/F.F/REW)
114	6056981	RECORDING BUTTON (E)
114	6056985	RECOARDING BUTTON (BS)
115	6057514	BUTTON (PAUSE/STEEL/STOP)
116	6057474	EJECT BUTTON
117	6866882	SHAFT
118	6305566	SPRING
119	6065171	TIMER BUTTON A
120	6065221	I.R.T BUTTON
121	6065211	PUSH BUTTON
122	6065201	CHANNEL BUTTON
123	6065191	DOLBEY BUTTON
124	6303714	SPRING
125	6863962	TIMER HOLDER
126	6864241	CAP
127	5672691	JACK PLATE
127	5679913	JACK PLATE
128	6065181	DIMMER BUTTON
129	——	VTR FRONTEND (E)
129	5585896	VTR FRONT END (BS)
130	5213301	POWER TRANSFOMER (E)
130	5213302	POWER TRANSFOMER (BS)
131	6866901	LED HOLDER A
132	6794091	BUSHING
132	5746157	POWER CORD (E)
133	5746342	POWER CORD (BS)
134	6863331	P.C.B GUIDE
135	5722211	FUSE HOLDER
136	5585702	RF CONVERTER (E)
136	5585727	RF CONVERTOR (BS)
137	6867041	RF.HOLDER
138	6871091	IR RECEIVER CAP (BS)
139	6864951	I.R RECEIVER COVER (BS)
140	7758592	INSULATION SHEAT (BS)
141	6872901	TIMER HOLDER
142	6872381	COVER(TIMER DISPLAY)

EXPLODED VIEWS

CABINET SECTION



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107
135
908
130
916
RECTIFIER P.C.B
909
907
914
917
146
915
DIN P.C.B
(For Except UK model)
132
133
134
REGULATOR P.C.B
TUNER IF P.C.B
913
129
TUNER/IF BLOCK
RF BOOSTER
TUNER PACK
PROGRAMME PRESET P.C.B
913
913
127
917
126
END SENSOR P.C.B (SUPPLY)
125
950
AUDIO P.C.B.
950
END SENSOR P.C.B (TAKE-UP)
TIMER P.C.B
104
136
RF CONVERTER
145
131
IR P.C.B.
(For UK model)
139
108
138
140
119
950
143
OPERATION SWITCH P.C.B
104
DEMODULATOR P.C.B
(For Except UK model)
137
913
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123
121
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905
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105
Y.CHROMA P.C.B
912
120
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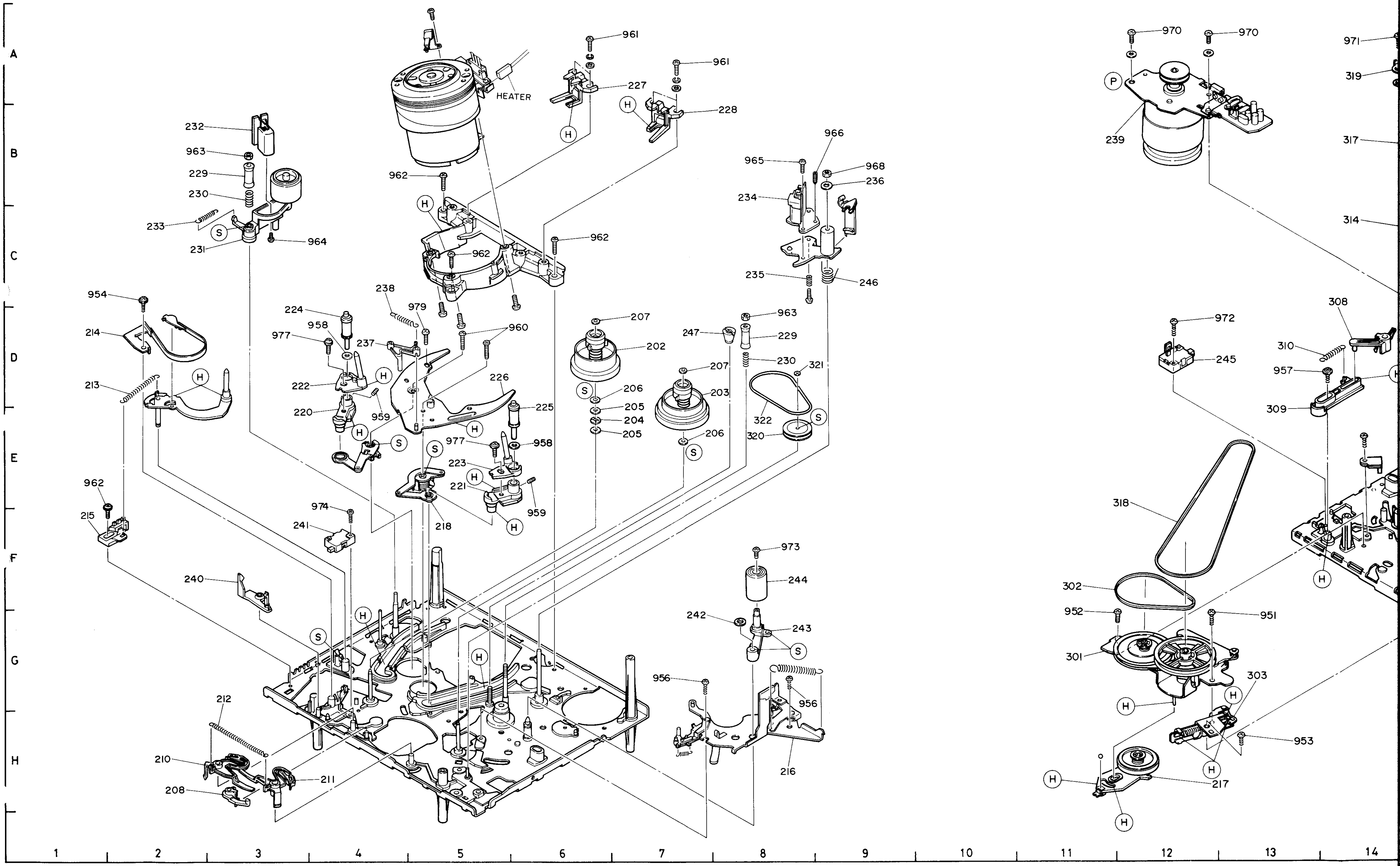
913
115
116
SYSTEM CONTROL/ SERVO P.C.B
144
122
111
905
905
913
103
905
913
110
905

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
143	4615882	I.R FILTER (BS)
144	6099923	JACK DOOR
145	6873321	LED HOLDER
146	6205441	REAR PANEL (BS)
146	6208191	REAR PANEL (E)
202	6414654	SUPPLY REEL ASSEMBLY
203	6414674	TAKE-UP REEL ASSEMBLY
204	6865761	RETAINER
205	7787032	THRUST SUPPORTER
206	7787412	WASHER
207	7778859	POLYSLIDER WASHER
209	5310943	TIMER DISPLAY
208	6865662	BRAKE ARM
210	6865804	BRAKE L
211	6865811	BRAKE R
212	6302471	SPRING
213	6302083	SPRING
214	7376271	TENSION BAND
215	6865591	HOLDER
216	7375716	ARM BRAKET ASSEMBLY
217	6865575	F.F/PEW ARM ASSEMBLY
218	7376303	LOADING LINK R ASSEMBLY
220	6977584	GUIDE ROLLER BASE (IN)
221	6977582	GUIDE ROLLER BASE (TAKE-UP)
222	6977481	INCLINED GUIDE (SUPPLY)
223	6977491	INCLINED GUIDE (TAKE-UP)
224	6344252	GUIDE ROLLER SHAFT
225	6868061	GUIDE ROLLER ASSEMBLY (OUT)
226	7376174	GUIDE BACE HOLDER
227	6977561	CATCHER (SUPPLY)
228	6977571	CATCHER (TAKE-UP)
229	7553841	TAPE GUIDE
230	6304903	SPRING
231	6866113	IMPEDANCE ARM
232	5448791	FULL ERASE HEAD
233	6302391	SPRING
234	5448962	AUDIO CONTROL HEAD
235	6304901	SPRING
236	7786245	WASHER
237	6865722	SUB BRAKE
238	6300084	SPRING
239	5577358	CAPSTAN MOTOR ASSEMBLY
240	6865674	RECORDING PREVENTION ARM
241	5633971	SWITCH (S141)
242	7788143	POLYSLIDER WASHER
243	6977821	PRESSURE ROLLER ARM
244	6383762	PRESSURE ROLLER
245	5633971	SWITCH (S141)
246	6547811	SPRING
247	7549271	X-ADJUST SCREW
248	7759811	SHEET
249	5625061	SWITCH
250	0249796	POSITHTOR
301	7375446	CLUTCH PLATE ASSEMBLY
302	6355561	BELT
303	7379663	BRAKE SLIDER
304	6865731	SLIDER
305	6547821	SPRING
306	6866297	LORDING GEAR ASSEMBLY
307	6865791	TENTION ARM
308	6865692	EJECT ARM
309	6865702	EJECT SLIDER
310	6300375	SPRING FOR RECORDING PLATE
311	7376352	LARDING MOTOR ASSEMBLY
312	6355601	BELT
313	6355591	BELT
314	6977431	FLYWHEEL
315	7788142	POLYSLIDER WASHER (THRUST)
316	7788148	WASHER
317	6357531	BELT
318	6355581	BELT
319	7376323	FLYWHEEL HOLDER
320	6869291	PULLEY
321	7778859	POLYSLIDER WASHER
322	6355561	BELT
401	7376058	CASSETTE HOLDER ASSEMBLY
402	7376073	HOLDER LINK ASSEMBLY
403	7376032	CASSETTE HOLDER ASSEMBLY
404	7375903	BRACKET R
405	7375912	BRACKET L
406	6866061	DUMPER ASSEMBLY
407	6866081	CLUTCH ARM
408	6866152	PRESSURE ARM(RIGHT)
409	6866142	PRESSURE ARM(LEFT)
410	7375931	PLATE
411	7375923	LOCK ARM
412	6866072	LOCK ARM
413	6542591	SPRING
414	6547881	SPRING L
415	6542581	SPRING
416	6542571	LOCK SPRING

SYMBOL-NO	P-NO	DESCRIPTION
		FOR FINAL ASSEMBLY
417	7778395	E RING
418	7230903	E RING - 4MMD
501	5458415	UPPER CYLINDER
502	5458421	LOWER CYLINDER ASSEMBLY
503	5792132	BRUSH
504	5792091	STATOR
505	5772601	ROTOR ASSEMBLY
506	5792121	WIRE HOLDER
507	5994731	CYL. FG PC BOARD
905	8699410	BT BIND SCREW-3MMD x 10MM
907	8671406	BT BIND SCREW-3MMD x 6MM
908	8660606	PAN SCREW-4MMD x 6MM (WITH WASHER)
909	8815166	WASHER - 4D LOCK
912	8671406	BT BIND SCREW - 3MMD x 6MM
913	7781131	B TIGHTING SCREW-3MMD x 12MM
914	8744406	SCREW (B3 x 6)
915	8741406	BT BIND SCREW - 3 MMD x 6MM
916	8711408	SCREW (3 x 8)
917	8699410	BT BIND SCREW - 3MMD x 10MM
950	7777615	SCREW
951	8691408	BIND TAPPING SCREW-3MMD x 8MM (BLACK)
952	8741408	SCREW (B3 x 8)
953	8691408	BIND TAPPING SCREW-3MMD x 8MM (BLACK)
954	7781133	BT SCREW-3MMD
955	8691408	BIND TAPPING SCREW-3MMD x 8MM (BLACK)
956	8691408	BIND TAPPING SCREW-3MMD x 8MM (BLACK)
959	7773083	SCREW
960	8741408	SCREW (B3 x 8)
961	7782761	SCREW (B3 x 8 WITH S. WASHER)
962	8650412	SCREW (B3 x 12 WITH S. WASHER)
963	8821114	3D NUT
964	8741103	SCREW (2 x 3B)
965	7781872	SCREW-3MMD x 8MM
966	7773086	SCREW
967	8741414	BINDING SCREW-3MMD x 14MM
968	8821114	3D NUT
969	8741408	SCREW (B3 x 8)
970	8691408	BIND TAPPING SCREW-3MMD x 8MM (BLACK)
971	8691408	BIND TAPPING SCREW-3MMD x 8MM (BLACK)
972	8691312	BT VIND SCREW-2.6MMD x 12MM
973	0741304	BIND SCREW-2.6MMD x 4MM
974	8691312	BT BIND SCREW-2.6MMD x 12MM
975	8652405	SCREW (B3 x 5 WITH S. WASHER)
976	8741408	SCREW (B3 x 8)
977	7782781	BT BIND SCREW-3MMD x 8MM
		FOR ACCESSARIES
	5639792	WIRELESS REMOTO CONTROL BOX (BS)
	5746623	CABLE (BS)
	5898876	CONNECTER CORD (E)

CHASSIS SECTION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HEATER
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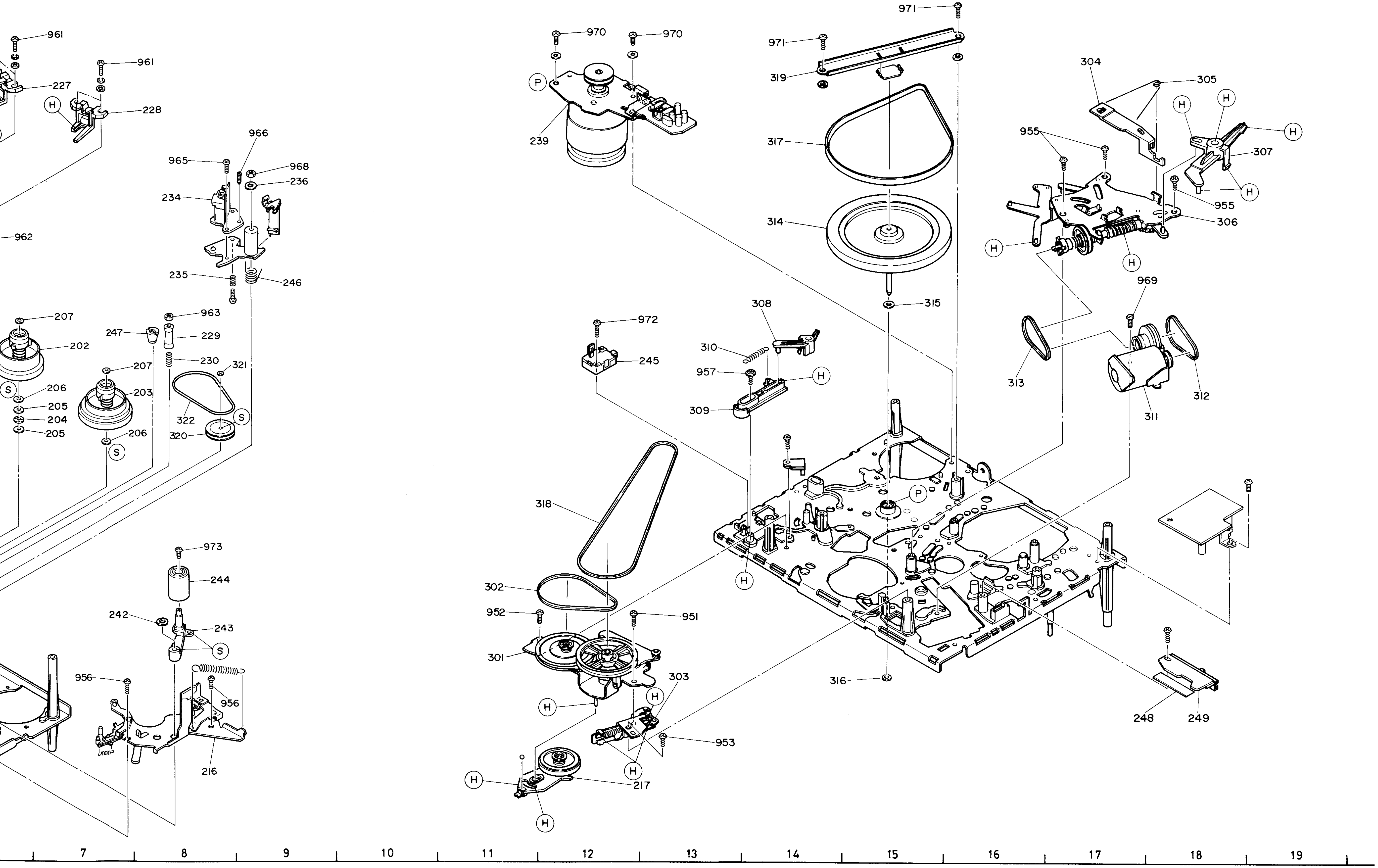
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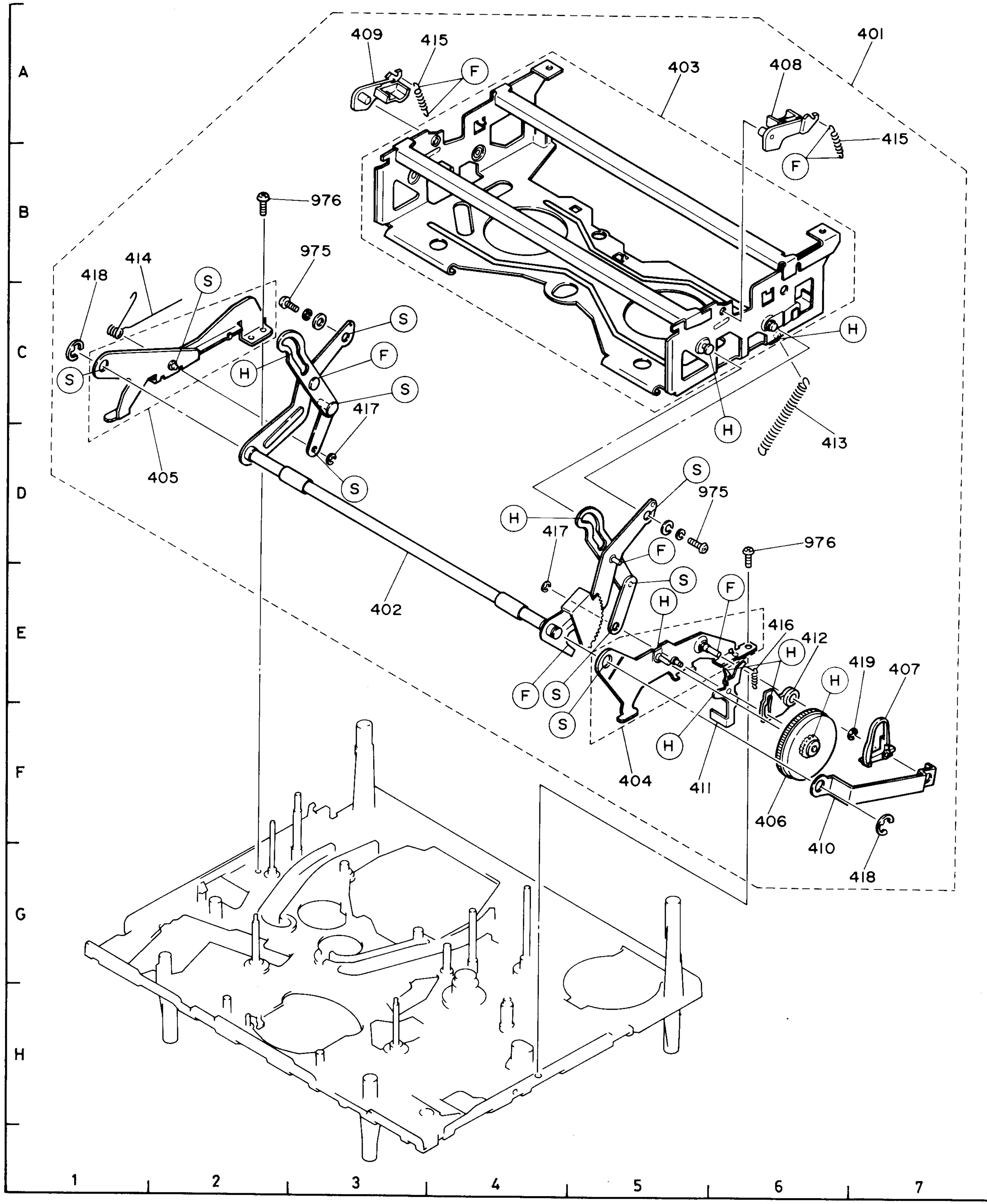
H

CASSETTE HOLDER SECTION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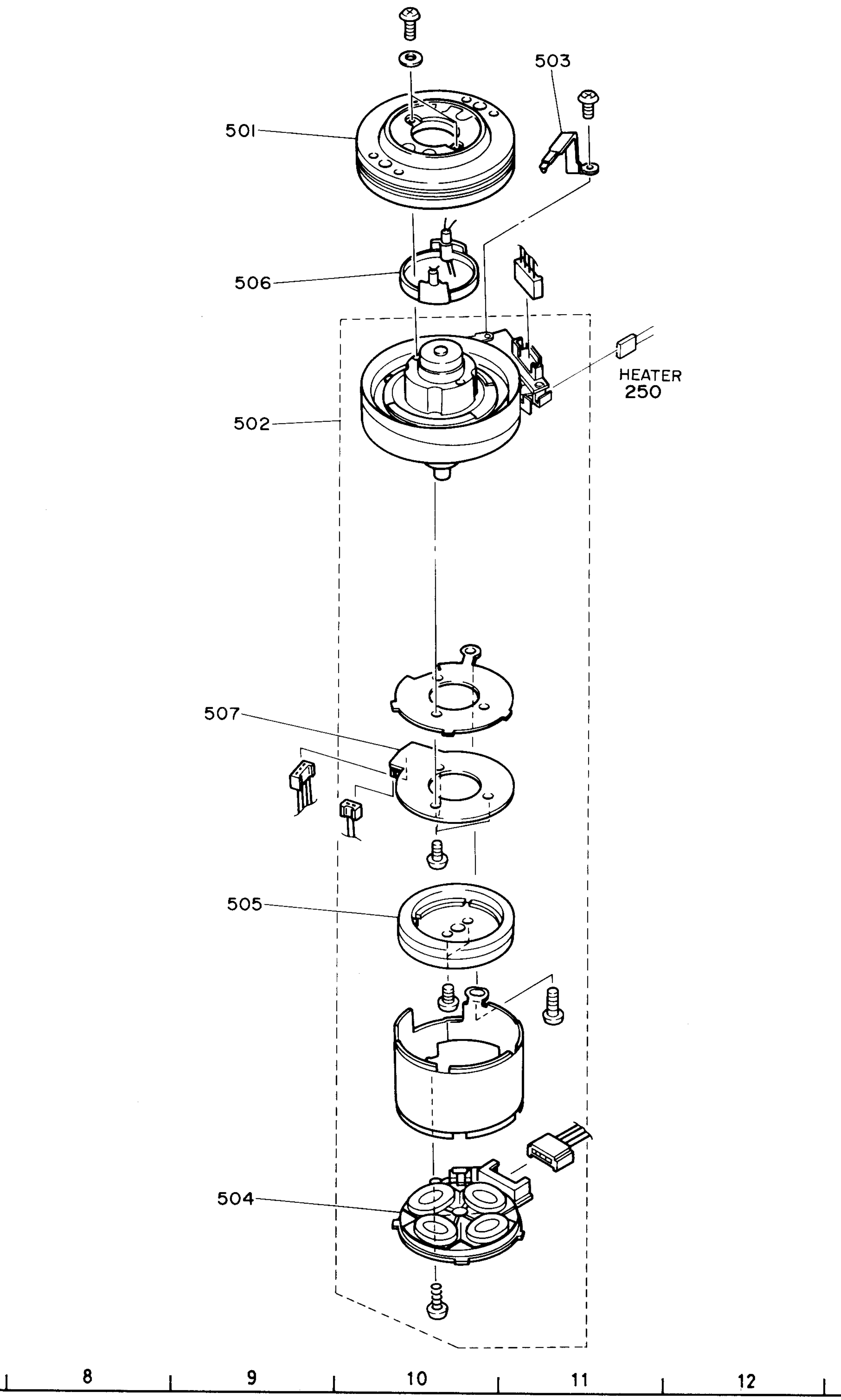
CYLINDER SECTION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HEATER
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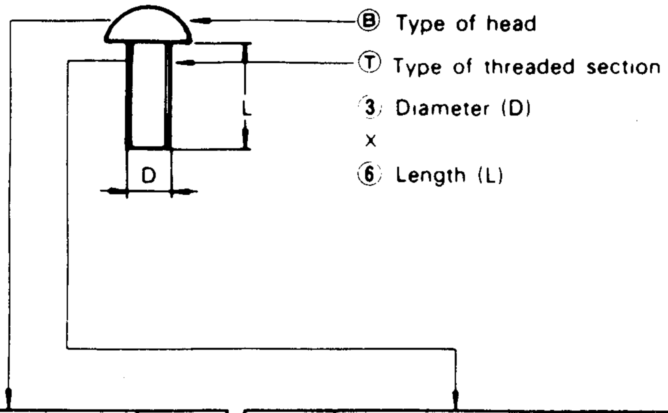
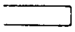
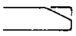
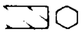
SCREW CLASSIFICATION

Example: BT3 × 6



Abbreviation	Name	Shape
No symbol	Brazier head	
P	Pan head	
B	Binding head	
O	Oval countersunk head	
F	Flat countersunk head	

Abbreviation	Name	Shape
No symbol	Machine (clamps without tapping)	
t	Tapping (clamps with tapping) Type 1	
T	Tapping (clamps with tapping) Type 2	
f	Forming tight (for metal)	
Note	Since the forming tight screw tightens while self-tapping machine screws can be replaced by tapping screws	

Washers and Nuts

Abbreviation	Name	Shape
W SW LW	Washer Spring washer Locking washer	
E	E-ring	
N	Nut	
Note	Internal dia. is indicated for nuts and washers	

LUBRICATION

Lubrication points are shown in the exploded view diagrams by marks as follows

Ⓢ Sonic slider oil (# 1600)
Ⓗ Hitazol (MO-138)
Ⓕ Froil (GB-TS-1)
Ⓟ Pan motor oil